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**Industrial automation systems and integration — Product data representation and exchange —
Part 226: Application protocol: Ship mechanical systems**

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ABSTRACT:

This document deals with ship mechanical systems data representation for the purpose of electronic data interchange. Ships mechanical systems, within the scope of this standard, include ship's propulsion systems, auxiliary systems and deck machinery systems, together with their components. Product data pertaining to all lifecycle phases of ship mechanical systems are in the scope of this standard. The lifecycle phases covered include specification, selection, installation, commissioning, operation, in-service inspection, maintenance and decommissioning.

KEYWORDS:

application protocol; ship equipment; ship machinery; ship mechanical systems; ship propulsion system; ship auxiliary systems; lifecycle; mechanical product.

COMMENTS TO READER:

This version of the document is based on WG3 N730, modified to show how classes representing mechanical components can be referenced through a library in a normative annex, instead of modeled as application objects. Only changes necessary for the library referencing scheme have been incorporated; other issues against N730 have not been addressed in this version. This version was prepared by Gopal Salvady and Gerry Radack at Concurrent Technologies Corporation.

Project Leader: Dr Z Bazari

Address: Lloyd's Register
Technical Investigation Dept.
29 Wellesley Road
Croydon CRO 2AJ, UK.

Telephone: +44 181 681 4706

Telefacsimile: +44 181 681 4864

Electronic mail: Zabi.Bazari@lr.org

Project Editor: Dr Z Bazari

Address: Lloyd's Register
Technical Investigation Dept.
29 Wellesley Road
Croydon CRO 2AJ, UK.

Telephone: +44 181 681 4706

Telefacsimile: +44 181 681 4864

Electronic mail: Zabi.Bazari@lr.org

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Foreword

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO Technical Committees. Each member body, interested in a subject for which a Technical Committee has been established, has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by Technical Committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 10303-226 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration, Subcommittee SC4, Industrial data*. Many organisations have contributed and sponsored the development of this standard through various projects. The contributions of the following are acknowledged:

- **ShipSTEP**: A European industry funded project, ran from 1994 to 1996, with 8 European companies contributing to the development of shipbuilding Application Protocols.
- **EMSA** (European Marine Step Association): EMSA was founded in 1995 to co-ordinate European Marine Step developments and embraces the main European Shipbuilders, Classification Societies and marine software vendors.
- **NIDDESC II** (Navy Industrial Digital Data Exchange Standards Committee): The USA Navy Industrial Digital Data Exchange Standards Committee was formed in 1986 as a cooperative effort by the Naval Sea Systems Command (NAVSEA) and the National Shipbuilding Research Program (NSRP) to collect and exchange information on product model data requirements and to ensure that benefits expected by industry and Navy are incorporated into national and international data exchange standards. The NIDDESC effort has resulted in the development of a suite of product model data exchange specifications. These exchange specifications have been submitted to the ISO TC184 SC4 in 1993 for inclusion in the series of ISO 10303 application protocols, which form the ship product model data.
- **EDIMAR** (Electronic Data Interchange in the European MARitime Industry): European Union funded project, ran from 1997 to 1998, with 11 European companies contributing to the development of the shipbuilding aspect of AP226.
- **AP226 EWGs** (Expert Working Groups): Many organisations have contributed to this part through active participation in AP226 EWGs within which the application experts' view and consensus were sought with regard to industry requirements.

Introduction

ISO 10303 is an International Standard for the computer-interpretable representation and exchange of product data. The objective is to provide a neutral mechanism capable of describing product data throughout the life cycle of product and independent from any particular system. The nature of this description makes it suitable not only for neutral file exchange, but also as a basis for implementing and sharing product databases and archiving.

This International Standard is organised as a series of parts, each published separately. The parts of ISO 10303 fall into one of the following series: description methods, integrated resources, application interpreted constructs, application protocols, abstract test suites, implementation methods and conformance testing. The series are described in ISO 10303-1. This part of ISO 10303 is a member of the application protocol series. This part of ISO 10303 specifies an application protocol (AP) for the exchange of data pertaining to all life-cycle phases of ship mechanical systems.

The principal focus of this part of ISO 10303 is:

- Ship propulsion system including main engine, propulsor and shafting systems.
- Auxiliary systems including fuel oil, lube oil, power generation, cooling water system, and steam generation systems.
- Deck machinery including cranes, derricks and winches.

This application protocol is one of the series of ship product application protocols as shown in Figure 1. The series of ship industry application protocols assumes that the ship product model can be divided into separate ship systems that each covers a key element of the ship for its whole life cycle. These key elements are:

- ship moulded forms;
- ship arrangements;
- ship distribution systems (piping, heating, ventilation and air conditioning, as well as electrical and cableway);
- ship structures;
- ship mechanical systems;
- ship outfit and furnishings;
- ship mission systems.

Each separate system is described by one or more different application protocols. The full series of shipbuilding application protocols is depicted in Figure 1.

The information requirements for ship mechanical systems have been organised in a series of units of functionality (UoF). Figure 2 shows the units of functionality for this part of ISO 10303 in the form of AP226 data planning model. For further introductory information of STEP, AP226 and its data planning model, please refer to annex L.

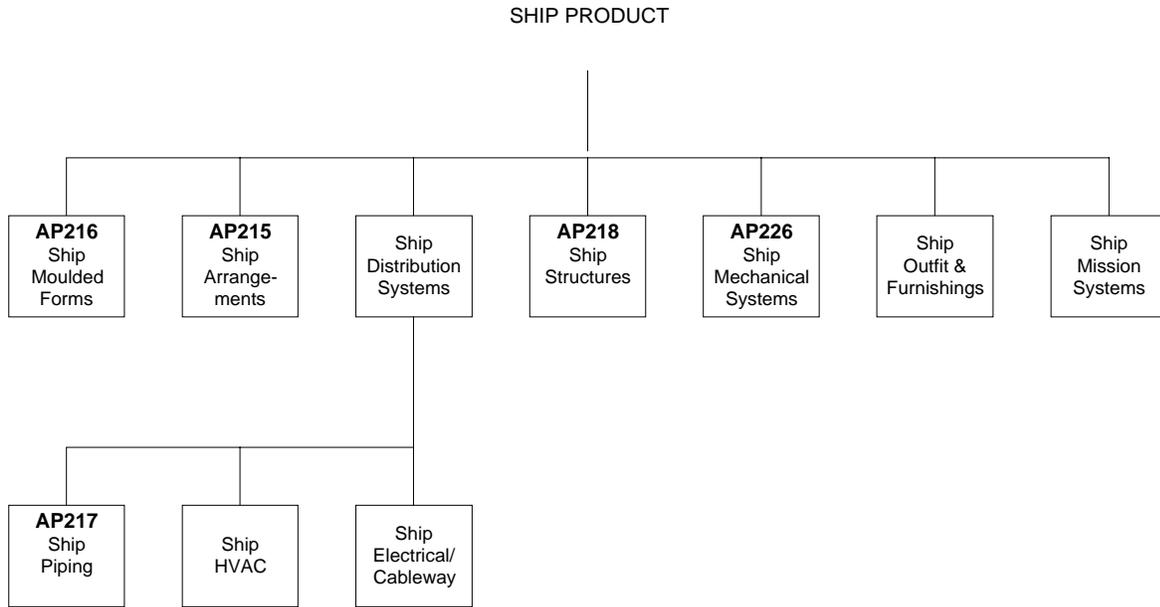


Figure 1 - Ship product application protocols

This part supports and interacts with the following parts of ISO 10303.

ISO 13584: parts library

AP226 supports external references to classes defined by ISO 13584. This part of ISO 10303 supports the exchange of standard parts catalogues used to define specific items within ship mechanical systems. A standard parts catalogue may be exchanged as part of a design, or referenced by a customer to a contractor in order to specify the standard parts that shall be used.

ISO 10303-221: Application Protocol: Functional data and their schematic representation for process plant.

This part of ISO 10303 supports external references to classes of properties defined by ISO 10303-221.

ISO 10303-215: Application protocol: Ship Arrangements

ISO 10303-216: Application protocol: Ship Moulded Forms.

ISO 10303-217: Application protocol: Ship Piping Systems.

ISO 10303-218: Application protocol: Ship Structures

Application protocols provide the basis for developing implementations of ISO 10303 and abstract test suites for the conformance testing of AP implementations.

Clause 1 defines the scope of the application protocol and summarises the functionality and data covered by the application protocol. Clause 2 provides a list of normative references. Clause 3 lists the

vocabulary defined in this part of ISO 10303 and gives pointers to vocabulary defined elsewhere. An application activity model that is the basis for the definition of the scope is provided in annex F. The information requirements of the application are specified in clause 4 using terminology appropriate to the application. A graphical representation of the information requirements, referred to as the application reference model (ARM), is given in annex G.

Resource constructs are interpreted to meet the information requirements. This interpretation produces the application interpreted model (AIM). This interpretation, given in clause 5.1, shows the correspondence between the ARM and the AIM. The short listing of the AIM specifies the interface to the integrated resources and is given in clause 5.2. Note that the definitions and EXPRESS provided in the integrated resources for constructs used in the AIM may include select list items and subtypes which are not imported into the AIM. The expanded listing given in annex A contains the complete EXPRESS for the AIM without annotation. A graphical representation of the AIM is given in annex H. Additional requirements for specific implementation methods are given in annex C.

Industrial automation systems and integration - Product data representation and exchange - Part 226: Application Protocol: Ship Mechanical Systems

1 Scope

This part of ISO 10303 specifies the use of the integrated resources necessary for the scope and information requirements for the exchange of ship mechanical systems information.

NOTE 1 - The Application Activity Model (AAM) in Annex F provides a graphical representation of the processes and information flows which are the basis for the definition of the scope of this part of ISO 10303.

The following are within the scope of this Part of ISO 10303:

- The representation of the mechanical systems and their principal components for both naval and commercial ships;
- The product definition data pertaining to the following lifecycle phases of the ship mechanical systems:
 - Specification;
 - Design/Selection;

NOTE 2 - The design data will be supported for those components that are designed and manufactured within the context of marine industry as shown in AAM (Annex F). For example, data necessary to design a diesel engine will not be supported while data required to design a marine propulsor will be supported.

- Approval;
- Installation;
- Commissioning/Acceptance;
- Operation;
- In-Service Inspection and Maintenance;
- Decommissioning/Disposal.
- The product definitions of the following mechanical systems:
 - the components in the systems that supply air to the engine room such as engine room ventilation fans and exhaust gas system such as silencers, economiser and so on.
 - the components in the fuel oil treatment and supply systems, engine lubricating system and engine cooling system.
 - the propulsion system: including main engines, shafts, couplings, gearing and propulsor;

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- the manoeuvring system, consisting of the rudder, stock and actuator; thrusters including azimuthing thrusters; hydroplanes stock and actuator; stabilisers; cycloidal propellers type units; pivoting nozzles and water jet type systems.
- the power systems including electric propulsion and auxiliary electrical generation;
- The product definitions of the following mechanical components:
 - the main engine;
 - pumps necessary for the operation of the main propulsion and essential machinery such as boiler feed, condensation extraction, fuel oil pumps, lubricating oil pumps and cooling water pumps.
 - the auxiliary machinery such as heat exchangers, air compressors and air receivers;
 - boilers;
 - auxiliary engines and thruster units;
 - deck machinery such as windlasses, winches, capstans, cranes and derricks;
- The distinction between the physical specifications and the functional specifications of various systems and components.
- The following product definition information:
 - the functional and physical connectivity between components and between systems including physical connectivity of equipment to ship structure;
 - functional description of components and systems such as performance and operational characteristics;
 - geometric representation of systems and components to a level compatible to lifecycle phases of the corresponding system and component;
 - technological information such as material, tolerance, noise, vibration, shock and stress characteristics;
 - data that are necessary for tracking a component's lifecycle and operational history such as specification, in-service inspection and maintenance data.

The following are outside the scope of this Part of 10303:

- the product definition data and physical connectivity pertaining to the following components and systems including:
 - the piping arrangements not integral to the machinery unit;
 - the electrical distribution systems not integral to the machinery unit;
 - the control systems not integral to the machinery unit;
 - maintenance equipment such as cranes, tools and so on.

- the ship's arrangement and compartmentation;
- the ship's Heating, Ventilation and Air Conditioning (HVAC) systems;
- the mission specific mechanical systems of the ship including:
 - cargo refrigeration
 - naval military equipment
- the outfitting of the ship, including hatch covers, watertight doors, fire fighting appliances, anchor and chain cables, davits and lifesaving appliances, sewage systems;
- data relating to the manufacture of the components.

2 Normative References

The following standards contain provisions which, through reference to this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10303 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 31:1994, *Quantities and Units*.

ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units*.

ISO 8824-1:1994, *Information Technology — Open Systems Interconnection — Abstract Syntax Notation One (ASN.1) — Part 1: Specification of Basic notation*.

ISO 10303-1:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 1: Overview and fundamental principles*.

ISO 10303-11:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 11: Description methods: The EXPRESS language reference manual*.

ISO 10303-21:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 21: Implementation methods: Clear text encoding of the exchange structure*.

ISO 10303-31:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 31: Conformance testing methodology and framework: General concepts*.

ISO 10303-41:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 41: Integrated generic resources: Fundamentals of product description and support*.

ISO 10303-42:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 42: Integrated generic resources: Geometric and topological representation*.

ISO 10303-43:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 43: Integrated generic resources: Representation structures*.

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ISO 10303-44:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 44: Integrated generic resources: Product structure configuration.*

ISO 10303-45: 1994, *Industrial automation systems and integration — Product data representation and exchange — Part 45: Integrated generic resources: Materials.*

ISO 10303-46:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 46: Integrated generic resources: Visual presentation.*

ISO 10303-49: 1994, *Industrial automation systems and integration — Product data representation and exchange — Part 49: Integrated generic resource: Process structure an properties.*

ISO 10303-101: 1994, *Industrial automation systems and integration — Product data representation and exchange — Part 101: Integrated application resource: Draughting.*

ISO 13584-1:, *Industrial automation systems and integration — Parts library — Part 1: Overview and fundamental Principles.*

ISO 13584-42:, *Industrial automation systems and integration — Parts library — Part 42: Methodology for Structuring Part Families.*

ISO 7967-1: 1987, *Reciprocating internal combustion engines — Vocabulary of components and systems.*

ISO 2710: 1978, *Reciprocating internal combustion engines - Vocabulary.*

IEC 50 (191): 1990-12, *First Edition, International Electrotechnical Vocabulary, Chapter 191: Dependability and quality of service.*

ISO DIS 14224: 1997, *Petroleum and natural gas industries – Collection and exchange of reliability and maintenance data for equipment.*

3 Definitions and abbreviations

3.1 Terms defined in ISO 10303-1

This part of ISO 10303 makes use of the following terms defined in ISO 10303-1:

- abstract test suite (ATS);
- application;
- application activity model (AAM);
- application context;
- application interpreted model (AIM);
- application object;
- application protocol (AP);
- application reference model (ARM);

- assembly;
- conformance class;
- conformance requirement;
- conformance testing;
- context;
- data;
- data exchange;
- implementation method;
- information;
- integrated resource;
- interpretation;
- model;
- PICS proforma;
- product;
- product data;
- protocol implementation conformance statement (PICS);
- structure;
- unit of functionality (UoF).

3.2 Terms defined in ISO 10303-31

This part of ISO 10303 makes use of the following terms defined in ISO 10303-31:

- conformance testing;
- postprocessor;
- preprocessor.

3.3 Terms defined in ISO 10303-41

This part of ISO 10303 makes use of the following terms defined in ISO 10303-41:

- Address;

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- Date;
- Date_and_time;
- Label;
- Organization;
- Organizational_project
- Person_and_organization;
- Text.

3.4 Terms defined in ISO 10303-42

This part of ISO 10303 makes use of the following terms defined in ISO 10303-42:

- Cartesian_point;
- Direction;
- Geometric_representation_item;
- Solid_model;
- Vector.

3.5 Terms defined in ISO 10303-43

This part of ISO 10303 makes use of the following terms defined in ISO 10303-43:

- representation.

3.6 Terms defined in ISO DIS 14224

This part of ISO 10303 makes use of the following terms defined in ISO DIS 14224:

- equipment unit;
- failure mode;
- non-critical failure.

3.7 Terms defined in IEC 50(191)

This part of ISO 10303 makes use of the following terms defined in IEC 50 (191):

- availability;
- availability performance;

- condition monitoring;
- corrective maintenance;
- critical failure;
- downstate;
- failure cause;
- failure rate;
- failure;
- fault mode;
- fault;
- latent fault;
- logistics delay;
- main availability;
- maintainability;
- maintainability performance;
- maintenance;
- maintenance man-hour;
- maintenance time;
- mean time between failure;
- mean time to failure;
- mean time to repair;
- preventive maintenance;
- reliability;
- reliability and maintainability management;
- scheduled maintenance;
- unscheduled maintenance;
- upstate.

3.8 Other definitions

For the purposes of this Part of ISO 10303, the following definitions apply:

3.8.1 acquisition code: a code number assigned to a product by a purchaser during the order process.

3.8.2 activity: anything that is carried out by human or by knowledge-based systems on a mechanical product or in relation to a mechanical product.

3.8.3 aft: the location at or near the stern of the ship.

3.8.4 ambient conditions: anything relating to a condition of the environment (see 3.8.57) such as temperature and pressure of the ambient fluid. All the conditions that influence the mechanical product and all the conditions resulting from the mechanical product's function are included.

3.8.5 ambient fluid: a fluid that surrounds a mechanical product.

3.8.6 anomaly: a product problem or enhancement that may result in a change requirement. The product problems are deviations from expected product specification. The product enhancement is a need for improved product specification.

3.8.7 approve: an activity (see 3.8.2) that confirms a mechanical product as being fit for purpose.

3.8.8 assembly: a composition (see 3.8.26) plus the specification of how the things in the composition are related to each other.

3.8.9 assess: an activity (see 3.8.2) that assesses a mechanical product for fitness for purpose.

3.8.10 auxiliary: any support role with reference to a main function (see 3.8.92).

3.8.11 auxiliary system: a system (see 3.8.154) that supports one or more main systems (see 3.8.91). In ship terminology, auxiliary systems refer to those systems that support the propulsion system.

3.8.12 azimuth thruster: a propulsor consisting of a propeller that can be rotated around a vertical shaft.

3.8.13 bilge system: a system (see 3.8.154), comprising pumps, pipes and so on for handling bilge water.

3.8.14 bill of material: a composition (see 3.8.26) plus the identification of all the mechanical products included in the composition.

3.8.15 boiler (steam generator): a type of steam generation system (see 3.8.146).

3.8.16 breakdown maintenance: the maintenance to be carried out after a fault recognition and intended to put a mechanical product into a state in which it can perform a required function.

3.8.17 CAD drawing: a plan (see 3.8.115) prepared by a CAD-system.

3.8.18 cargo handling system: a system (see 3.8.154) whose main function (see 3.8.92) is handling ship cargo.

3.8.19 catalogue: a type of document (see 3.8.48) in printed or electronic format that contains information on one or a set of mechanical products.

3.8.20 class: a concept to group mechanical products, with similar characteristics, with the purpose of describing the common properties of the class members. Each mechanical product belongs to at least one class.

NOTE 1 - A class usually has a criterion for inclusion or exclusion of mechanical products.

3.8.21 classification: the process of ensuring that a ship is designed, built and maintained to a prescribed standard. This is done by a periodic survey of the ship.

3.8.22 classification society: an organisation that enhances the safety of life and property at sea by providing rules, regulations and personnel for assessing and classifying ships during their life cycle.

3.8.23 clutch: a disengageable connection between two elements in a mechanical transmission system.

3.8.24 collection: a set of things that do not have any relationship to each other apart from being members of the same set.

3.8.25 component: a mechanical product that is part of another mechanical product and has not already been classified as a system (see 3.8.154) or an equipment (3.8.58). A component cannot have a system or an equipment as part of it.

3.8.26 composition: an association that indicates that one mechanical product is composed of many other mechanical products.

3.8.27 compressed air system: a system (see 3.8.154) that produces compressed air to satisfy the requirements of all components that require compressed air to perform their function.

3.8.28 compression ratio: the ratio of the maximum and minimum cylinder trapped volumes of a reciprocating machinery.

3.8.29 compressor: a reciprocating or rotary machinery for raising the pressure of air or another gas.

3.8.30 condition based maintenance: a maintenance to be carried out according to prescribed criteria and intended to reduce the probability of failure or the degradation of a mechanical product.

3.8.31 condition monitoring: a function by which the state of a mechanical product is monitored.

3.8.32 configuration: a data specification that deals with identification, approvals and versioning aspects of a mechanical product or its definitions (see 3.8.43).

3.8.33 connecting component: any intermediary mechanical product including weld, gaskets, bolts, nuts, and so on that are needed in order to realise a connection (see 3.8.34).

3.8.34 connection: an association between two mechanical products that results from a physical joining.

3.8.35 connector: a mechanical product that establishes an interface between two mechanical products or between a mechanical product and other category of items.

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3.8.36 connector component: a type of component (see 3.8.25) that plays the role of a connector (see 3.8.35).

3.8.37 control: a function (see 3.8.70) by which a process is controlled.

3.8.38 control and monitoring system: a system (see 3.8.154) with the primary function of controlling and/or monitoring a mechanical product.

3.8.39 control equipment: a non-machinery equipment (see 3.8.58) that is primarily used in the control and monitoring systems.

3.8.40 cooling water system: a system (see 3.8.154) for storing, treating and transporting water at desired temperature, pressure and flowrate to satisfy the requirements of all equipment (see 3.8.58) that require cooling by water.

3.8.41 deck machinery: all types of equipment (see 3.8.58) that are positioned on the ship's deck and perform the operations of mooring, cargo handling and anchor handling including winches, windlasses, capstans, derricks and cranes.

3.8.42 decomposition hierarchy: a systematic breakdown of a mechanical product into its subsystems and components. The decomposition hierarchy for selected mechanical products are documented in Annex M of this part of ISO 10303.

3.8.43 definitions: an aggregation of the information and properties that defines or describes one or many aspects of a mechanical product.

3.8.44 definitions configuration: a data specification that defines the configuration (see 3.8.32) for a set of definitions (see 3.8.43).

3.8.45 design: a task (see 3.8.155) that creates and defines, with drawings and data, a new version of a mechanical product.

3.8.46 diesel engine: a reciprocating machinery (see 3.8.133) operating on the compression ignition and internal combustion principles and used as a prime mover.

3.8.47 diesel power system: a power system (see 3.8.119) with a diesel engine (see 3.8.46) as the prime mover (see 3.8.120).

3.8.48 document: any type of information content in the form of manuals, computer files, catalogues, reports, books and so on in standard or non-standard formats.

3.8.49 economiser: an equipment (see 3.8.58) that uses the energy of the exhaust gases leaving the diesel engine to heat water for ship domestic use or as a feedwater preheater for an auxiliary boiler.

3.8.50 electric generator: an electrical machinery (see 3.8.54) that converts mechanical power into electrical power.

3.8.51 electric motor: an electrical machinery (see 3.8.54) that converts electrical power into mechanical power.

3.8.52 electrical equipment: an equipment (see 3.8.58) that is primarily used in an electrical system. Electric motors and generators are examples of electrical equipment.

3.8.53 electrical generation system (power plant): a system (see 3.8.154) that generates electrical energy by converting fuel energy.

3.8.54 electrical machinery: an electrical equipment (see 3.8.52) with the function as machinery. Electrical motors and generators are examples of electrical machinery.

3.8.55 engine room ventilation system: a system (see 3.8.154) for supplying fresh air to the engine room.

3.8.56 engineering analysis: an activity carried out, either manually or by computer, either experimentally or theoretically, in order to develop or verify a theory, or to quantify one aspect of the mechanical product behaviour.

3.8.57 environment: anything external to a mechanical product that has a bearing on function and usage of the mechanical product.

3.8.58 equipment: a mechanical product that carries out a generally self contained function and to a large extent may be treated as a single mechanical product for the purpose of design, acquisition, or operation. An equipment has both physical and functional properties.

EXAMPLE 1 - A turbocharger is an equipment. A pump is also an equipment.

3.8.59 equipment condition: a condition of the equipment that indicates that the equipment's state is just outside the optimum operational limits and that a failure/fault has not been identified in the equipment. Typical conditions are that very small vibrations or increased temperatures have been detected. A condition could be a sign of a latent fault. As soon as a failure/fault is recognised, the equipment state changes from a condition to either a critical or non-critical fault state.

3.8.60 event and approval data: a set of data that relates to an event (see 3.8.61) and its approval/authorisation.

3.8.61 event: a state which identifies that something has happened at a certain time. A person normally causes the event.

3.8.62 failure: the condition of mechanical product under which the expected and satisfactory performance cannot be attained.

3.8.63 field data: the performance information and data about an operational product.

3.8.64 filter: a device or porous substance through which a gas or a liquid is passed in order to remove solids or impurities.

3.8.65 fluid distributor: any equipment (see 3.8.58) or system (see 3.8.154) that is used to distribute or direct fluids.

3.8.66 fluid mover: any equipment (see 3.58) that compresses/pressurises a fluid.

3.8.67 fore: that part of the ship which is at the front of the ship.

3.8.68 fresh water: the processed water on-board ship that is used for utilities.

3.8.69 fuel oil system: a system (see 3.8.154) for storing, treating, and transporting liquid fuel to equipment (see 3.8.58) that requires fuel to perform its function.

3.8.70 function : the underlying purpose for the existence or the use of a mechanical product.

3.8.71 functional: a reference to the actions, activities, or capabilities that a mechanical product provides or may provide to fulfil a purpose.

3.8.72 functional characteristics: nomenclature, codes, and named values that describe or specify the performance or behaviour of a mechanical product.

EXAMPLE 1 - Typical functional characteristics of a diesel engine are its speed-power relationships. Typical pump characteristics are its head-flowrate relationships.

3.8.73 functional specifications: nomenclature, codes, and named values that describe or specify the performance or behaviour to be met by a mechanical product.

3.8.74 gas turbine: a rotating machinery operating on the continuous ignition and internal combustion principle and used as a prime mover (see 3.8.120).

3.8.75 gas turbine power system: a power system (see 3.8.119) with a gas turbine engine as the prime mover.

3.8.76 gear box: an equipment (see 3.8.58) used for reducing or increasing shaft speed within a transmission system, thereby matching the prime mover to the load. A gear box may also combine two or more shaft inputs into one shaft output or vice-versa.

3.8.77 general characteristics: the most general and most widely used information relating to a mechanical product.

3.8.78 heat exchanger: an equipment (see 3.8.58) that transfers heat from one medium or system to another.

3.8.79 inertia: the tendency of a body rotating about a fixed axis to resist a change in this rotating motion. Normally referred to as moment of inertia.

3.8.80 inspect: an activity (see 3.8.2) that assesses a mechanical product against a design or any other specified requirements.

3.8.81 install: an activity (see 3.8.2) that fixes the position of mechanical products in physical space and their connections to other types of equipment and systems according to design specification.

3.8.82 item: any part, component, subsystem, functional unit, equipment, or system of a ship that can be individually considered. The item refers to all the mechanical, electrical, structural, and other physical elements as well as non-physical aspects such as features and so on.

3.8.83 life cycle status: the product data that specify where in its lifecycle the product is.

3.8.84 liquid impurity: any type of liquid, at low concentrations, that is part of the composition of a liquid, normally with some harmful effect on the use of the liquid for a specific purpose.

3.8.85 log: a structured record capturing specified sets of information at given ship events (see 3.8.61) or at specified time intervals. Deck and engine logs are normally required by law.

3.8.86 lube oil system: a piping system (see 3.8.114) for supplying lubricant at the desired temperature and pressure and flowrate to equipment (see 3.8.586) that requires lubrication.

- 3.8.87 lubrication oil:** an oil derivative liquid that is used mainly for the machinery lubrication.
- 3.8.88 machinery:** a reciprocating or rotating equipment that performs some sort of energy conversion as its underlying function.
- 3.8.89 main equipment:** an equipment (see 3.8.58) that provides the main function in a given system.
- 3.8.90 main propulsion system:** a propulsion system (see 3.8.126) used to achieve the main ship forward motion.
- 3.8.91 main system:** a system (see 3.8.154) that provides the main function (see 3.8.92).
- 3.8.92 main function:** the primary role with reference to a function (see 3.8.70).
- 3.8.93 maintain:** an activity in which a pre-defined set of tasks are carried out on mechanical products in order to keep them in proper condition.
- 3.8.94 maintenance planning:** the function (see 3.8.70) by which the maintenance of a mechanical product is planned.
- 3.8.95 manoeuvring propulsion system:** a propulsion system (see 3.8.126) used to carry out the ship manoeuvring in port and in emergency situations.
- 3.8.96 manoeuvring system:** a system (see 3.8.154) used to perform planned movement or change from the straight, steady course and speed of a ship or to maintain the vessel in a given stationary location and heading.
- 3.8.97 material:** the substance or substances from which a mechanical product or any other physical item is made.
- 3.8.98 mechanical component:** a component (see 3.8.25) with a primary mechanical function.
- 3.8.99 mechanical connector:** a connector (see 3.8.35) that is primarily used for connecting mechanical equipments together.
- 3.8.100 mechanical equipment:** a non-machinery equipment that is primarily used in mechanical systems. Gear boxes and couplings are examples of mechanical equipment.
- 3.8.101 mechanical machinery:** a machinery (see 3.8.88) that is primarily used in mechanical systems. All kinds of reciprocating and rotary engines are examples of mechanical machinery.
- 3.8.102 mechanical power transmission:** the function (see 3.8.70) of transmitting mechanical power from one point to another point.
- 3.8.103 mechanical product:** any item (see 3.8.82) of the ship mechanical systems that is realisable as a physical thing. A mechanical product has both physical and functional properties.
- 3.8.104 mechanical system:** a system (see 3.8.154) that is within the scope (see 1) of this part of ISO 10303.

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3.8.105 mechanical transmission system: a system (see 3.8.154) by which motive power from the prime mover is made available and matched to load. Shafting system connecting main engine to propeller, or shafting system connecting auxiliary engine to electric generators are examples of mechanical transmission systems.

3.8.106 members of composition: those mechanical products that appear at the first decomposition level of the decomposition hierarchy (see 3.8.42). The members of composition within this part of ISO 10303 are those specified in Annex M.

3.8.107 metallic impurity: any type of trace metal that is part of the composition of a liquid, normally with some harmful effect on the use of the liquid for a specific purpose.

3.8.108 mounting: a connection (see 3.8.34), rigid or flexible, between an equipment (see 3.8.58) and the ship's structure.

3.8.109 operate: an activity that controls the functioning of a mechanical product.

3.8.110 part: any mechanical product at atomic (lowest composition) the level.

3.8.111 physical: a reference term which refers to shape and material characteristics such as weight, size, and location of the mechanical product.

3.8.112 piping connector: a connector (see 3.8.35) that is primarily used in a piping system for connecting piping equipment or piping parts to each other.

3.8.113 piping equipment: a non-machinery equipment that is primarily used in a piping system. Valves are examples of piping equipment.

3.8.114 piping system: a system (see 3.8.154) composed of pipes, valves, pumps/compressors, and so on with the main function of transporting and distributing fluids.

3.8.115 plan: any type of dimensional drawing of a mechanical product.

3.8.116 podded drive propulsor: a type of azimuth thruster (see 3.8.12) consisting of a propulsor, driven from a dedicated prime mover or a pump-jet type propulsor (see 3.8.130).

3.8.117 port: a type of connector (see 3.8.35) that enables a flow of energy, load, process material or signal to or from another mechanical product.

3.8.118 power generation: the function (see 3.8.70) that converts fuel energy into electrical or mechanical energy.

3.8.119 power system: a system (see 3.8.154) that supplies mechanical energy for the operation of another system.

3.8.120 prime mover: a type of machinery that converts natural source of energy into mechanical power.

3.8.121 process equipment: an equipment (see 3.8.58) that is primarily used in a process plant for carrying out certain processes. Heat exchangers, filters and purifiers are examples of process equipment.

- 3.8.122 procure:** an activity (see 3.8.2) by which a specified mechanical product is acquired.
- 3.8.123 product configuration:** a data specification that defines the configuration (see 3.8.32) of a mechanical product for the purpose of managing/controlling current status and historical changes of the product.
- 3.8.124 product connectivity:** a data specification that defines all aspects of product connections (see 3.8.34) in relation to external systems and equipments.
- 3.8.125 product structure:** a data specification that defines the following in relation to a mechanical product: i) the system for which the mechanical product is a part, ii) the items that are part of the mechanical product, and iii) the position and location of a mechanical product.
- 3.8.126 propulsion system:** a system (see 3.8.154) that produces the required ship momentum for its forward movement by influencing the velocity of the fluid passing through the propulsor (see 3.8.128).
- 3.8.127 propulsion:** the function (see 3.8.70) that produces the required thrust for ship movement using fuel energy.
- 3.8.128 propulsor:** a powered equipment that sets up a thrust on the water to enable a ship to move in a controlled direction. Propeller is an example of a propulsor.
- 3.8.129 pump:** a rotating or reciprocating machinery that converts mechanical energy into fluid energy in the form of higher fluid pressure.
- 3.8.130 pump-jet propulsor:** a pump system that accelerates large volumes of water, drawn in from beneath the ship, and expels it as a high speed horizontal jet, setting up a sufficient reaction force to propel the ship. The pump impeller is mounted with a vertical axis.
- 3.8.131 reliability, availability and maintainability (RAM) analysis:** an engineering analysis (see 3.8.56) activity with the objective of defining the RAM characteristic of mechanical products.
- 3.8.132 reliability, availability and maintainability (RAM) characteristics:** a set of product- related properties that specifies the reliability, availability and maintainability properties of a product.
- 3.8.133 reciprocating machinery:** a machinery (see 3.8.88) that works according to reciprocating motion.
- 3.8.134 rotating machinery:** a machinery (see 3.8.88) that works according to rotating motion.
- 3.8.135 schematic presentation:** a type of drawing that conveys information about relationships among things by the relative physical position of symbols.
- 3.8.136 screw propeller:** a revolving boss with blades that are usually set at an angle and twisted like the threads of a screw. When the propeller is rotated in the water, a column of water passes through it, gaining momentum. The reactive force which arises is taken up by the thrust bearing in the transmission system, enabling the ship to move.
- 3.8.137 sediments:** all types of solid impurities of a liquid that normally settle to the bottom of the container of liquid.

3.8.138 shaft bearing: a mechanical component (see 3.8.25) for supporting shaft radial or axial load.

3.8.139 shaft: a beam (usually of circular section) transmitting torque between the prime mover and the load. A shaft may be part of a series of shafts as in a ship's main propulsion shafting system between prime mover and propeller.

3.8.140 ship mechanical system: a mechanical system (see 3.8.104) that provides or performs, or is intended to provide or perform, a service or function contributing to or enabling the operation of a ship.

3.8.141 ship mooring system: a system (see 3.8.154) whose main function is to secure a ship in open water.

3.8.142 ship operation: all activities required by ship operator and onboard crew to enable the intended services of the ship. In this application protocol the main emphasis is on the technical part of the ship operation. The ship operation phase within the ship lifecycle starts when the ship is commissioned and ends when the ship is scrapped.

3.8.143 silencer: an equipment (see 3.8.58) used to reduce the noise emanating from the engine.

3.8.144 solid model: a geometric representation of a mechanical product and deals mainly with external geometries including shape, volume, area and so on.

3.8.145 spatial arrangements: the location, orientation and relative position of the components of a mechanical system.

3.8.146 steam generation system: a system (see 3.8.154) that converts water into steam.

3.8.147 steam generation: the function (see 3.8.70) of converting water into steam.

3.8.148 steam power system: a power system (see 3.8.119) with a steam turbine (see 3.8.149) as prime mover.

3.8.149 steam turbine: a turbine with steam as working fluid.

3.8.150 steering mechanism: a system (see 3.8.154) that provides the means of manoeuvring the ship under normal service conditions.

3.8.151 supercharger: a mechanically driven centrifugal air compressor used to increase the induction pressure in an internal combustion engine.

3.8.152 survey planning: the function (see 3.8.70) by which the survey of mechanical product is planned.

3.8.153 survey: the activity of examining one or more mechanical products in order to appraise their condition as being fit for purpose.

3.8.154 system: an assembly of one or more items (see 3.8.82), with functional and physical relationships between them, that performs or can perform a clearly identified function (see 3.8.70) as a whole. A system may have both physical and functional properties.

3.8.155 task: anything that is carried out by a human on a mechanical product or in relation to a mechanical product. Each task has a clear beginning and ending.

3.8.156 time based maintenance: the maintenance to be carried out at predetermined intervals intended to reduce the probability of failure or the degradation of an item.

3.8.157 transmission (electrical, mechanical, hydraulic): the function (see 3.8.70) that transfers (electrical, mechanical, hydraulic) power from one location to another.

3.8.158 tunnel thruster: a propulsor (see 3.8.128) consisting of a propeller mounted in a fixed tunnel in the ship's structure. Normally used as auxiliary thrust units and are provided to facilitate manoeuvres in tight waters. Bow thruster units on a ferry are examples of tunnel thruster.

3.8.159 turbine: a rotating machinery (see 3.8.134) that converts the internal energy of a fluid into mechanical energy.

3.8.160 turbocharger: a centrifugal air compressor driven by a gas turbine used to increase the induction pressure in an internal combustion engine.

3.8.161 water-jet propulsor: a machinery that takes in water by means of a suitable inlet and ducting system and accelerates the mass of water using an impeller and nozzle to form a jet propulsion system. The impeller is mounted with a horizontal axis.

3.9 Abbreviations

For the purposes of this Part of ISO 10303, the following abbreviations apply.

AAM	application activity model
AIM	application interpreted model
AP	application protocol
BMEP	brake mean effective pressure
BSFC	brake specific fuel consumption
CAD	computer aided design
CFD	computational fluid dynamics
FEA	finite element analysis
IDEF0	ICAM definition language
IMEP	indicated mean effective pressure
MP	mechanical product
PICS	protocol implementation conformance statement
PLIB	parts library standard ISO 13584
RAM	reliability, availability and maintainability
SI	Système International
UoF	units of functionality

4 Information requirements

This clause specifies the information required for the exchange of ship's mechanical systems data.

The information requirements are specified as a set of units of functionality, application objects, and application assertions. These assertions pertain to individual application objects and to relationships between application objects. The information requirements are defined using the terminology of the subject area of this application protocol.

NOTES

- 1 - A graphical representation of the information requirements is given in annex G.
- 2 - The information requirements correspond to those of the activities identified as being in the scope of this application protocol in annex F.
- 3 - The mapping table is specified in 5.1 which shows how the information requirements are met using the integrated resources of this International Standard. The use of the integrated resources introduces additional requirements which are common to all application protocols.

4.1 Units of functionality

This subclause specifies the units of functionality for the Ship's Mechanical Systems application protocol. This Part of ISO 10303 specifies the following units of functionality:

- configuration_definitions;
- external_references;
- gas_material_properties;
- liquid_material_properties;
- local_co_ordinate_systems;
- maintenance_tasks;
- measure_with_units;
- mechanical_machineries;
- mechanical_product_anomalies;
- mechanical_product_components;
- mechanical_product_connections;
- mechanical_product_definitions;
- mechanical_product_representations;
- mechanical_product_structures;
- other_tasks;
- part41_resources;
- part42_resources;
- PLIB_external_references
- RAM_characteristics;
- ships;
- solid_material_properties;
- task_definitions;
- tasks;
- time_and_events.

The units of functionality and a description of the functions that each UoF supports are given below. The application objects included in the UoFs are defined in clause 4.2.

4.1.1 configuration_definitions

The configuration_definitions UoF specifies the concepts for keeping high level records and information relating to product identification and its usage context. Concepts such as associating the product to contracts/projects and assigning the ownership of product are supported. The configuration_definitions UoF also supports the life cycle identification of a mechanical product and whether a mechanical product represents a conceptual, designed, planned or a real thing.

NOTES

- 1 - Product configuration (see 3.8.123) is independent of its definitions' configuration (see 3.8.44). However, it may reference data relating to definitions' configuration.
- 2 - The tracking of mechanical product status within its lifecycle is within the scope of this UoF.
- 3 - The concepts required to uniquely identify a mechanical product and its classification are out of scope of this UoF.
- 4 - The concepts required to support configuration management activities such as versioning, change control and approval of version or change are out of scope of this UoF.

The following application objects are used by the configuration_definitions UoF:

- Configuration_definition;
- Product_context;
- Product_identification;
- Product_status.

4.1.2 external_references

The external_references UoF specifies an external reference mechanism to assign additional documentation in electronic or non-electronic form to the product, task/activity or definitions. The external_references UoF also facilitates access to information, standard or non-standard, on ship mechanical systems that are outside the scope of this part of ISO 10303.

NOTES

- 1 - All types of user manuals, computer files, catalogues, reports, books and so on are considered as external documents and are in the scope of this UoF.
- 2 - The referencing of external databases and data libraries, standard or non-standard, are in the scope of this UoF.

The following application objects are used by the external_references UoF:

- Document;
- Document_reference;
- External_instance_reference;
- External_mechanical_product_definition;
- External_reference;
- External_reference_inside_source;
- GUID.

4.1.3 gas_material_properties

The gas_material_properties UoF specifies the framework for grouping of the gas properties into physical, chemical and other types of properties and their association to a gaseous material.

NOTES

- 1 - The reference pressure and temperature for gas properties are specified in this UoF.
- 2 - The scope of this UoF covers gaseous fuels, gaseous working fluids and gaseous ambient conditions.

The following application objects are used by the gas_material_properties UoF:

- Gas_chemical_property;
- Gas_material_property;
- Gas_physical_property.

4.1.4 liquid_material_properties

The liquid_material_properties UoF specifies the framework for grouping of the liquid properties into physical, chemical and other types of properties and their association to a liquid material.

NOTES

- 1 - The reference pressure and temperature for liquid properties are specified in this UoF.
- 2 - The scope of this UoF covers liquid fuels, liquid working fluids and liquid ambient conditions.

The following application objects are used by the liquid_material_properties UoF:

- Liquid_chemical_property;
- Liquid_fluid_impurity;
- Liquid_impurity;
- Liquid_material_property;
- Liquid_physical_property;
- Material_property;
- Metallic_impurity.

4.1.5 local_co_ordinate_systems

The local_co_ordinate_systems UoF specifies location of a mechanical product within the coordinate system.

The following application objects are used by the local_co_ordinate_systems UoF:

- Local_co_ordinate_system.

4.1.6 maintenance_tasks

The maintenance_tasks UoF specifies the concept for associating the relevant definitions (see 3.8.43) to a maintenance task.

NOTES

- 1 - This UoF inherits all the maintenance task related definitions.
- 2 - This UoF is always used in association with generic task related UoFs which associate description, approval details, identification data and other definitions to a maintenance task.

The following application objects are used by the maintenance_tasks UoF:

- Maintenance_configuration_data;
- Maintenance_human_resource;
- Maintenance_procedure;
- Maintenance_result;
- Maintenance_schedule;
- Maintenance_spare_part;
- Maintenance_task;
- Maintenance-tool.

4.1.7 measure_with_units

The measure_with_units UoF specifies the concept for representing measures for physical quantities together with their units.

The following application objects are used by the measure_with_units UoF:

- Density;
- Dilatation;
- Energy_per_mass;
- Heat_capacity;
- Inertia_moment;
- Length;
- Mass;
- Measure_with_unit;
- Plane_angle;
- Power;
- Pressure;
- Ratio;
- Rotational_speed;
- Speed;
- Stress;
- Surface_tension;
- Temperature;
- Thermal_conductivity;
- Time;
- Torque;
- Viscosity.

4.1.8 mechanical_machineries

The mechanical_machineries UoF specifies the concept for associating the relevant definitions (see 3.8.43) to a mechanical machinery (see 3.8.101).

NOTES

1 - This UoF inherits all the mechanical machinery related definitions.

2 - This UoF is always used in association with other UoFs which associate description, approval details, identification data and other definitions to a mechanical machinery.

The following application objects are used by the mechanical_machineries UoF:

- Mechanical_machinery_identification;

4.1.9 mechanical_product_anomalies

The `mechanical_product_anomalies` UoF specifies the concept and framework for type hierarchy and grouping of different types of engineering information relating to product anomaly (see 3.8.6).

NOTES

- 1 - The definition of tasks in order to rectify the product anomaly is outside the scope of this UoF:
- 2 - The classification and identification of type of anomaly are within the scope of this UoF.

The following application objects are used by the `mechanical_product_anomalies` UoF;

- `Design_anomaly`;
- `Failure`;
- `Failure_effect`;
- `Fault`;
- `Product_anomaly`.

4.1.10 mechanical_product_connections

The `mechanical_product_connections` UoF specifies the concept for defining the physical connections between mechanical products.

NOTES

- 1 - This UoF is used to specify the type of connection as well as the engineering specifications for the connection.
- 2 - Identification of all the mechanical products which take part in realising the physical connection is in the scope of this UoF.

The following application objects are used by the `mechanical_product_connections` UoF:

- `Connection_characteristic`;
- `Connection_specification`;
- `Electrical_connection`;
- `Mechanical_connection`;
- `Mechanical_product_connection`;
- `Piping_connection`;
- `Product_connection`;
- `Structural_connection`.

4.1.11 mechanical_product_definitions

The `mechanical_product_definitions` UoF specifies the high level concept and framework for type hierarchy and grouping of all the engineering information (descriptions and properties) which are attributable to mechanical products.

NOTES

- 1 - The information in the form of documentation is within the scope of this UoF.
- 2 - The information on identifying a mechanical product, its structure and its configuration are outside the scope of this UoF.

3 - The product data and information needed in support of or resulting from lifecycle engineering activities and tasks, carried out in relation to mechanical products, are outside the scope of this UoF.

The following application objects are used by the `mechanical_product_definitions` UoF:

- `Ambient_condition`;
- `Definition`;
- `Design_characteristic`;
- `Engineering_analysis_definition`;
- `Functional_characteristic`;
- `Functional_definition`;
- `Gas`;
- `Geometric_definition`;
- `Liquid`;
- `Mass_weight_inertia`;
- `Operational_characteristic`;
- `Overall_dimension`;
- `Physical_definition`;
- `Product_material`;
- `Tolerance`.

4.1.12 `mechanical_product equipments`

The `mechanical_product equipments` specifies the high-level concept for representing the generic class of equipment (see 3.8.58) and association of the relevant definitions (see 3.8.43) to this class.

NOTES

- 1 - This UoF is always used in connection with other UoFs which associates definitions to equipment.
- 2 - This UoF is used by all subtypes of equipment.

The following application objects are used by the `mechanical_product equipments` UoF:

- `MP_equipment_identification`;

4.1.13 `mechanical_product representations`

The `mechanical_product representations` UoF specifies the concept for the representation of mechanical product's detailed geometric definitions in the form of shape representation (solid model) and drawing. The `mechanical_product representations` UoF also facilitates the exchange of identification information on drawings, in addition to the exchange of drawing itself.

NOTES

- 1 - Definition of the internal geometry of mechanical products is outside the scope of this UoF.
- 2 - Information on drawings for identification purposes and association of a drawing to a mechanical product is within the scope of this UoF.

The following application objects are used by the `mechanical_product representations` UoF:

- `Axis2_placement`;
- `CAD_system`;
- `External_drawing`;
- `External_shape_representation`;

- Mechanical_product_drawing;
- Mechanical_product_representation;
- Mechanical_product_shape_representation;
- PLIB_defined_shape_representation.

4.1.14 mechanical_product_structures

The mechanical_product_structures UoF defines the internal composition (see 3.8.26), external participation (being part of something else), connectivity, position and orientation of mechanical products. The mechanical_product_structures UoF provides the ability to exchange description of the position of a mechanical product and its arrangement.

NOTES

- 1 - This UoF is always used in conjunction with the mechanical_products UoF for which composition, participation, connectivity and placement need to be defined.
- 2 - The placement and position of the mechanical product may be something such as a compartment or side of a ship.
- 3 - The precise position of the mechanical products in terms of ship co-ordinate system is within the scope of this UoF.
- 4 - The composition of mechanical products will be supported in terms of mechanical product hierarchical decomposition, as developed and documented within this part of ISO 10303 (see Annex M).
- 5 - The connectivity of mechanical product to its boundary mechanical products and ship structures are facilitated by inclusion of connectors (see 3.8.35) within the internal composition of mechanical products. However, the definition of a physical connection (see 3.8.34) is outside the scope of this UoF and is supported by the mechanical_product_connections UoF (see 4.1.15).

The following application object is used by the mechanical_product_structures UoF:

- Product_assembly;
- Product_composition;
- Product_connectivity;
- Product_participation;
- Product_placement;
- Product_structure_definition;
- Ship_space;

4.1.15 mechanical_products

The mechanical_products UoF specifies the high level concept for defining the type hierarchy and classification of mechanical products (see 3.8.103) in a compatible way to other ship APs.

NOTES

- 1 - This UoF does not provide any extra information about the mechanical product other than its existence, context within which it is used and its functionality.
- 2 - This UoF is always used in connection with other UoFs which associate description, approval, identification data and other definitions to a mechanical product.

The following application objects are used by the mechanical_products UoF:

- Definable_object;
- Item;

- Item_relationship;
- Item_structure;
- Mechanical_product;
- Mechanical_product_relationship.

4.1.16 other_tasks

The other_tasks UoF specifies the concept for defining the high-level information relating to tasks (see 3.8.155) which have not been defined in other UoFs.

NOTES

- 1 - This UoF does not provide any extra information about a task other than its existence and its type.
- 2 - This UoF is normally used in connection with other task-related UoFs which associate description, approval data and other definitions to the tasks.

The following application objects are used by the other_tasks UoF:

- Analysis_task;
- Design_task;
- Operation_task;
- Other_task;
- Survey_inspection_task.

4.1.17 part41_resources

The part41_resources UoF specifies all the application objects which are in ISO10303-41 and are used by this part of ISO 10303.

The following application objects are used by the part41_resources UoF:

- Address;
- Date;
- Date_and_time;
- Label;
- Organization;
- Organizational_project;
- Person;
- Person_and_organization;
- Text.

4.1.18 part42_resources

The part42_resources UoF specifies all the application objects which are in ISO10303-42 and are used by this part of ISO 10303.

The following application objects are used by the part42_resources UoF:

- Cartesian_point;
- Direction;
- Geometric_representation_item;
- Solid_model;
- Vector.

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4.1.19 PLIB_external_references

The PLIB_external_references UoF specifies the mechanism to access mechanical product class and property definitions that are contained in an ISO13584-42 compliant parts library.

NOTE 1 –Normative annex N contains a parts library that defines mechanical product classes and properties for this part of ISO 10303.

The following application objects are used by the PLIB_external_references UoF:

- Binary_value;
- Boolean_value
- Class_BSU;
- Integer_value;
- Logical_value;
- PLIB_class_reference;
- PLIB_property_reference;
- Property_BSU;
- Property_value;
- Real_value;
- String_value
- Supplier_BSU;
- Value;
- Value_list.

4.1.20 RAM_characteristics

The RAM_characteristics UoF specifies the concept for collecting the data and information relating to mechanical product's RAM characteristics (see 3.8.132).

NOTES

- 1 - The procedures for calculating or recording the RAM-related data are outside the scope of this UoF.
- 2 - This UoF is closely related to product_anomalies UoF.

The following application objects are used by the RAM_characteristics UoF:

- Availability;
- Maintainability;
- RAM_characteristic;
- Reliability.

4.1.21 ships

The ships UoF specifies the information required to describe the ship. All ship product data are defined independent of the ship and have a reference to it. The ships UoF describes the essential information to permit that reference. This UoF is common to ship related application protocols.

The following application objects are used by the ships UoF:

- Ship.

4.1.22 solid_material_properties

The solid_material_properties UoF specifies the material properties and their association to a solid material.

The following application objects are used by the `solid_material_properties` UoF:

- `Element_content`;
- `Solid_material_property`.

4.1.23 `task_definitions`

The `task_definitions` UoF specifies the high level concept and framework for type hierarchy and grouping of all the data and information which are attributable to tasks (see 3.8.155).

NOTES

- 1 - The information in the form of documentation is in the scope of this UoF.
- 2 - The information relating to task configuration, procedures, schedules and required resources are in the scope of this UoF.

The following application objects are used by the `task_definitions` UoF:

- `Human_resource`;
- `Spare_part`;
- `Task_approval`;
- `Task_configuration`;
- `Task_definition`;
- `Task_other_definition`;
- `Task_other_resource`;
- `Task_procedure`;
- `Task_resource`;
- `Task_result`;
- `Task_schedule`;
- `Tool`.

4.1.24 `tasks`

The `tasks` UoF specifies the concept for defining the high-level information relating to tasks (see 3.8.155). Concepts for relating tasks to each other and identification of major aspects of relationship are also supported by the `tasks` UoF.

NOTES

- 1 - This UoF does not provide any extra information about a task other than its existence, its identification and the identification of the mechanical products which the task relates to.
- 2 - This UoF is normally used in connection with other task-related UoFs which associate description, approval and definitions to the tasks.

The following application objects are used by the `tasks` UoF:

- `Task`;
- `Task_relationship`.

4.1.25 `time_and_events`

The `time_and_events` UoF specifies the concept for describing the events and their authorisation and approval. All the events which take place during the various stages of ship life cycle are in the scope of the `time_and_events` UoF

The following application objects are used by the time_and_events UoF:

- Approval_event;
- Event;
- Time_period;
- Time_schedule.

4.2 Application Objects

This subclause specifies the application objects for the ship mechanical systems application protocol. Each application object is an atomic element that embodies a unique application concept and contains attributes specifying the data elements of the object. The application objects and their definitions are given below.

4.2.1 Address

An Address specifies postal data associated with a person or organisation. It is used as defined in ISO 10303-41.

4.2.2 Ambient_condition

An Ambient_condition specifies and collects data relating to the ambient conditions of a mechanical product.

The data associated with an Ambient_condition are the following:

- ambient_fluid;
- ambient_pressure;
- ambient_temperature;
- defined_for;
- environment.

4.2.2.1 ambient_fluid

The ambient_fluid attribute specifies the type of the ambient fluid for the mechanical product. An ambient_fluid can be either a Gas (see 4.2.62) or a Liquid (see 4.2.81).

4.2.2.2 ambient_pressure

The ambient_pressure attribute specifies the pressure of the ambient fluid.

4.2.2.3 ambient_temperature

The ambient_temperature attribute specifies the temperature of the ambient fluid.

4.2.2.4 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which ambient condition data are defined.

4.2.2.5 environment

The environment attribute specifies and describes the major aspects of the environment within which a mechanical product operates.

4.2.3 Analysis_task

An Analysis_task is a type of Task (see 4.2.189) and specifies the concept for collecting data which are attributable to an analysis task.

The data associated with an Analysis_task are the following:

- type_of_task.

The type_of_task attribute specifies the type of analysis task in a text format.

4.2.4 Approval_details

The Approval_details is a type of Approval_event (see 4.2.6) and specifies the approval information for a drawing.

4.2.5 Approval_event

An Approval_event is a type of Event (see 4.2.50) and specifies an approval or authorisation event.

The data associated with an Approval_event are the following:

- result.

The result attribute specifies the approval status the event leads to.

The value of result shall be one of the following:

- approved;
- noted;
- rejected;
- unapproved.

4.2.5.1 approved: a version of the Definition has been approved for use in a later lifecycle phase.

4.2.5.2 noted: the need for an approval decision for a version of the Definition has been identified.

4.2.5.3 rejected: the version of the Definition has been rejected for use in a later lifecycle phase.

4.2.5.4 unapproved: the approval status of a version of the Definition is in the process of being reviewed by the organization.

4.2.6 Availability

An Availability specifies the data which are attributable to availability performance of a mechanical product.

The data associated with an Availability are the following:

- duration_of_down-time;
- duration_of_up_time;
- mean_availability;
- total_duration.

4.2.6.1 duration_of_down_time

The duration_of_down_time attribute specifies the expected duration for an equipment to be in a downstate (see 3.7).

4.2.6.2 duration_of_up_time

The duration_of_up_time attribute specifies the expected duration for an equipment to be in an upstate (see 3.7).

4.2.6.3 mean_availability

The mean_availability attribute specifies the mean availability (see 3.7) for an equipment.

4.2.6.4 total_duration

The total_duration attribute specifies the total duration of time for which availability performance information is specified.

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4.2.7 Axis2_placement

The Axis2_placement specifies the local coordinate system of the mechanical product class.

4.2.8 Binary_value

An Binary_value is a holder for a value of type binary, as defined in Clause 8.1.5 of ISO 10303-11:1994.

NOTE - A Binary_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a Binary_value are the following.

- the_value

The the_value specifies whether the value is TRUE or FALSE.

4.2.9 Boolean_value

An Boolean_value is a holder for a value of type boolean, as defined in Clause 8.1.7 of ISO 10303-11:1994.

NOTE - A Boolean_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a Boolean_value are the following.

- the_value

The the_value specifies the string of bits making up the boolean value.

4.2.10 CAD_system

The CAD_system specifies the version number and name of the CAD system used for representing the mechanical product via drawing or any other shape representation.

The data associated with a CAD_system are the following.

- name;
- version_number.

4.2.10.1 name

The name attribute specifies the name of the CAD_system.

4.2.10.2 verison_number

The version_number attribute specifies the version number of CAD_system.

4.2.11 Cartesian_point

A Cartesian_point specifies a point defined by its coordinates in a rectangular Cartesian coordinate system, or in a parameter space. The entity is defined in a one, two or three-dimensional space as determined by the number of coordinates in the list. It is used as defined in ISO 10303-42.

4.2.12 Class_BSU

A class_BSU entity is the means for the identification of a class in an ISO 13584 parts library.

The data associated with a Class_BSU are the following.

- code;
- defined_by;
- version.

4.2.12.1 code

The code specifies the code assigned to this class by its supplier.

4.2.12.2 defined_by

The defined_by specifies the supplier defining this class and its dictionary element.

4.2.12.3 version

The version specifies the variant of the class.

4.2.13 Configuration_definition

A Configuration_definition is a type of Definition (see 4.2.30) and specifies the data relating to the configuration (see 3.8.32) of a mechanical product.

The data associated with a Configuration_definition are the following:

- configuration_id

The configuration_id attribute specifies the identification of the mechanical product configuration in the form of a label.

4.2.14 Connection_characteristic

A Connection_characteristic specifies all the information which defines the functional and operational characteristics of a connection (see 3.8.34).

The data associated with a Connection_characteristic are the following:

- connection_functional_characteristics;
- connection_operational_characteristics.

4.2.14.1 connection_functional_characteristics

The connection_functional_characteristics attribute specifies all the information which relates to functional design aspects of a connection in the form of documents.

4.2.14.2 connection_operational_characteristics

The connection_operational_characteristics attribute specifies all the information which relates to operational aspects of a connection in the form of documents.

4.2.15 Connection_specification

A Connection_specification specifies all the information which relates to non-functional aspects of a connection (see 3.8.34) including manufacturing and installation aspects and geometric definitions.

The data associated with a Connection_specification are the following:

- connection_procedure;
- engineering_definitions;
- geometric_definitions.

4.2.15.1 connection_procedure

The connection_procedure attribute specifies the procedure for assembly, installation and disassembly of the connection in the form of reference to documents.

4.2.15.2 engineering_definitions

The engineering_definitions attribute specifies all the engineering data relating to the connection in the form of reference to documents.

4.2.15.3 geometric_definitions

The geometric_definitions attribute specifies details of geometric specifications including dimensional drawings in the form of reference to documents.

4.2.16 Date_and_time

A Date_and_time specifies the combined calendar date and the day time. It is used as defined in ISO 10303-41.

4.2.17 Definable_object

A Definable_object is the supertype for all the objects which needs to be defined.

The data associated with a Definable_object are the following:

- definitions.

The definitions attribute references a set of zero to many Definitions (see 4.2.30) which relate to a Definable_object.

4.2.18 Definition

A Definition is the supertype for all kinds of product's definitions (see 3.8.43). Within this part of ISO 10303, each Definition is either a Physical_definition (see 4.2.135), a Functional_definition (see 4.2.61), a Configuration_definition (see 4.2.12), an Engineering_analysis_definition (see 4.2.49), a Product_anomaly (see 4.2.146), Mechanical_product_general_characteristic (see 4.2.115), or a Product_structure_definition (see 4.2.157).

The data associated with a Definition are the following:

- defined_for;
- local_units;
- value;
- version_id.

4.2.18.1 defined_for

The defined_for specifies the definable objects which are defined by Definition. There may be more than one defined_for for a Definition.

4.2.18.2 local_units

The local_units attribute specifies the units that Definition makes use of, if different from the ones globally defined for the ship. There may be more than one local_units for a Definition.

4.2.18.3 value

The value specifies the property value that makes up this Definition. The value need not be specified for a given Definition. There may be more than one value for a Definition.

4.2.18.4 version_id_id

The version_id_id provides simple version control. The version_id need not be specified for a particular Definition.

4.2.19 Density

A Density is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the density of a material.

The data associated with a Density are the following:

- density_unit.

The density_unit attribute specifies all the units which can be used to specify density.

4.2.20 Design_anomaly

A Design_anomaly is a type of Product_anomaly (see 4.2.146) which specifies the data which are attributable to design anomaly (see 3.8.6) of a mechanical product.

The data associated with a Design_anomaly are the following:

- design_anomaly_type

The design_anomaly_type attribute specifies a descriptor for the type of design anomaly in textual format.

4.2.21 Design_characteristic

A Design_characteristic is a type of Functional_characteristic (see 4.2.60) and specifies the high level concept for all the definitions (see 3.8.43) which are attributable to the functional design of a mechanical product.

The data associated with a Design_characteristic are the following:

- defined_for;
- design_stage.

4.2.21.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which design characteristics are defined.

4.2.21.2 design_stage

The design_stage attribute specifies the design stage in text format.

4.2.22 Design_task

A Design_task is a type of Task (see 4.2.189) and specifies the concept for collecting data which are attributable to a design task.

The data associated with a Design_task are the following:

- type_of_task.

The type_of_task attribute specifies the type of design task in a text format.

4.2.23 Dilatation

A Dilatation is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the dilatation of something.

The data associated with a Dilatation are the following:

- dilatation_unit.

The dilatation_unit attribute specifies all the units that can be used to specify dilatation.

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4.2.24 Direction

A Direction specifies a general direction vector in two or three dimensional space. It is used as defined in ISO 10303-42.

4.2.25 Document

A Document specifies global identification information for a document.

The data associated with a Document are the following:

- author;
- version_id.

4.2.25.1 author

The author attribute specifies full details of the author of the document.

4.2.25.2 version_id

The version_id attribute specifies the version number for identification of the document.

4.2.26 Document_reference

A Document_reference is a type of External_reference (see 4.2.54) and a type of Document (see 4.2.41) and specifies the qualification of a Document in terms of its source and location.

4.2.27 Drawing_configuration

A Drawing_configuration specifies information for identification of CAD drawings and their approval details.

The data associated with a Drawing_configuration are the following:

- CAD_system_used;
- drawing_approval_details;
- drawing_description;
- drawing_id;
- drawing_title;
- drawing_type.

4.2.27.1 CAD_system_used

The CAD_system_used attribute specifies the name and version number of the CAD system used to generate the drawing.

4.2.27.2 drawing_approval_details

The drawing_approval_details attribute specifies the summary information on the approval of a CAD drawing. A Drawing_configuration may have many drawing_approval_details.

4.2.27.3 drawing_description

The drawing_description attribute specifies a textual description of the drawing, its context and modifications.

4.2.27.4 drawing_id

The drawing_id attribute specifies the drawing identification number. A Drawing_configuration must have only one drawing_id.

4.2.27.5 drawing_title

The drawing_title attribute specifies the full title of the drawing in a textual format.

4.2.27.6 drawing_type

The drawing_type attribute specifies the type of the drawing.

The value of drawing_type shall be one of the following:

- detailed_arrangement;
- general_arrangement;
- schematic;
- sectional_view;
- user_defined_drawing_type.

4.2.27.6.1 detailed_arrangement: the descriptor which specifies that the drawing is a detailed arrangement.

4.2.27.6.2 general_arrangement: the descriptor which specifies that the drawing is of type general arrangement.

4.2.27.6.3 schematic: the descriptor which specifies that the drawing is of type schematic.

4.2.27.6.4 sectional_view: the descriptor which specifies that the drawing is of type sectional view.

4.2.27.6.5 user_defined_drawing_type: the descriptor, set by the user, which specifies the type of drawing if different from the other options.

4.2.28 Electrical_connection

An Electrical_connection is a type of Mechanical_product_connection (see 4.2.113) which specifies the connection between a mechanical component and an electrical component or between two electrical components.

The data associated with an Electrical_connection are the following:

- connection_type.

The connection_type attribute specifies the type of electrical connection.

The value of the connection_type shall be one of the following:

- welded;
- socketed;
- user_defined_connection_type;
- welded.

4.2.28.1 socketed: The descriptor which specifies that the electrical connection is of type socketed.

4.2.28.2 user_defined_connection_type: The descriptor, set by the user, which specifies the type of electric connection if different from the other options.

4.2.28.3 welded: The descriptor which specifies that the electrical connection is of type welded.

4.2.29 Element_content

An Element_content specifies the significant compositional information about the solid material.

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The data associated with an Element_content are the following:

- element_content_percent;
- element_name.

4.2.29.1 element_content_percent

The element_content_percent attribute specifies the percentage of each compositional element.

4.2.29.2 element_name

The element_name attribute specifies the name of each compositional element.

4.2.30 Energy_per_mass

An Energy_per_mass is a type of Measure_with_unit (see 4.2.104) when the physical quantity is the specific energy (energy per mass) of a material.

The data associated with an Energy_per_mass are the following:

- energy_per_mass_unit.

The energy_per_mass_unit attribute specifies all the units which can be used to specify density.

4.2.31 Engineering_analysis_definition

An Engineering_analysis_definition is a type of Definition (see 4.2.30) which specifies the high level concept for all the definitions (see 3.8.43) which are attributable to engineering analysis (see 3.8.56).

The data associated with an Engineering_analysis_definition are the following:

- engineering_analysis_in_context;
- organisation.

4.2.31.1 engineering_analysis_in_context

The engineering_analysis_in_context attribute specifies the type of engineering analysis (see 3.8.56).

The value of engineering_analysis_in_context shall be one of the following:

- CFD_analysis;
- failure_investigation;
- FEA;
- RAM_analysis;
- thermodynamic_analysis;
- vibration_analysis;
- user_defined_analysis;

4.2.31.1.1 CFD_analysis: the descriptor which specifies that the analysis is primarily of type CFD/analysis

4.2.31.1.2 failure_investigation: the descriptor which specifies that the analysis is primarily of type failure investigation.

4.2.31.1.3 FEA: the descriptor which specifies that the analysis is primarily of type FEA.

4.2.31.1.4 RAM_analysis: the descriptor which specifies that the analysis is primarily of type RAM analysis.

4.2.31.1.5 thermodynamic_analysis: the descriptor which specifies that the analysis is primarily of type thermodynamic analysis.

4.2.31.1.6 vibration_analysis: the descriptor which specifies that the analysis is primarily of type vibration analysis.

4.2.31.1.7 user_defined_analysis: the descriptor, set by the user, that specifies the type of engineering analysis if different from the other options.

4.2.31.2 organisation

The organisation attribute specifies the organisation which has carried out the engineering analysis.

4.2.32 Event

An Event identifies that something has happened at a certain time, activated by a certain person for a certain reason.

The data associated with an Event are the following:

- caused_by;
- caused_when;
- description.

4.2.32.1 caused_by

The caused_by attribute specifies the person causing an Event.

4.2.32.2 caused_when

The caused_when attribute specifies the date and time the Event occurred.

4.2.32.3 description

The description attribute specifies a textual description of significant features and reasons for the Event. The description need not be specified for a particular Event.

4.2.33 External_drawing

An External drawing is a drawing of mechanical product in a CAD_system that is referenced from external source.

- drawing_type
- CAD_system_details

4.2.33.1 drawing_type

The drawing_type attribute specifies the type of the drawing.

The value of `drawing_type` shall be one of the following:

- `detailed_arrangement`;
- `general_arrangement`;
- `schematic`;
- `sectional_view`;
- `user_defined_drawing_type`.

4.2.33.1.1 `detailed_arrangement`: the descriptor which specifies that the drawing is a detailed arrangement.

4.2.33.1.2 `general_arrangement`: the descriptor which specifies that the drawing is of type general arrangement.

4.2.33.1.3 `schematic`: the descriptor which specifies that the drawing is of type schematic.

4.2.33.1.4 `sectional_view`: the descriptor which specifies that the drawing is of type sectional view.

4.2.33.1.5 `user_defined_drawing_type`: the descriptor, set by the user, which specifies the type of drawing if different from the other options.

4.2.33.2 `CAD_system_details`

The `CAD_system_details` attribute specifies the name and version number of the `CAD_system`.

4.2.34 `External_instance_reference`

An `External_instance_reference` is a type of `External_reference` (see 4.2.54) and specifies the concept for referencing an external instance of application objects in an exchange file.

The data associated with an `External_instance_reference` are the following:

- `entity_name`;
- `schema_name`.

4.2.34.1 `entity_name`

The `entity_name` attribute specifies the name of the entity as a label.

4.2.34.2 `schema_name`

The `schema_name` attribute specifies the name of the schema within which the entity is located, as a label.

4.2.35 `External_mechanical_product_definition`

An `External_mechanical_product_definition` is a type of `External_instance_reference` (see 4.2.52) and specifies the concept for referencing an externally defined instance of all the entities defined in this part of ISO 10303.

4.2.36 `External_reference`

An `External_reference` specifies the high level concept for referencing an information source, external to this part of ISO 10303.

The data associated with an `External_reference` are the following:

- `description`;
- `location`;
- `source_type`.

4.2.36.1 description

The description attribute specifies a description of the external source in text format.

4.2.36.2 location

The location attribute specifies the location of an external source in the form of an address.

4.2.36.3 source_type

The source_type attribute specifies the type of the external source.

4.2.37 External_reference_inside_source

An External_reference_inside_source is a type of External_reference (see 4.2.54) with a pointer to a location inside the source. If the source is for example a book, the pointer could be a section label or a page number.

The data associated with an External_reference_inside_source are the following:

- line_number;
- page;
- paragraph;
- section.

4.2.37.1 line_number

The line_number attribute specifies a line number. The line_number need not be specified for a particular External_reference_inside_source.

4.2.37.2 page

The page attribute specifies the page number. The page need not be specified for a particular External_reference_inside_source.

4.2.37.3 paragraph

The attribute paragraph specifies the paragraph identifier. The paragraph need not be specified for a particular External_reference_inside_source.

4.2.37.4 section

The section attribute specifies a section label. The section need not be specified for a particular External_reference_inside_source.

4.2.38 External_shape_representation

An External_shape_representation is a shape representation of mechanical product in th form of solid, surface or wireframe model in the CAD_system referenced from external source.

The data associated with an External_shape_representation are the following.

- shape_representation_type;
- CAD_system_details.

4.2.38.1 shape_representation_type

The shape_representation_type specifies the variuos types of shape representation of a mechanical product in CAD_system.

The value of shape_representation_type shall be one of the following.

- solid;
- surface;
- wireframe;

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4.2.38.1.1 solid: the descriptor which specifies that mechanical product is represented as a solid geometry.

4.2.38.1.2 surface: the descriptor which specifies that the mechanical product is represented as a surface geometry.

4.2.38.1.3 wireframe: the descriptor which specifies that the mechanical product is represented by curve geometries.

4.2.38.2 CAD_system_details

The CAD_system_details specifies the name and version_number of the CAD_system.

4.2.39 Failure

A Failure is a type of Product_anomaly (see 4.2.146) which specifies the data which are attributable to a mechanical product failure.

The data associated with a Failure are the following:

- detailed_failure_cause;
- failure_cause;
- failure_criticality;
- failure_descriptor;
- failure_discovery_description;
- failure_effects;
- failure_mode;
- failure_related_faults;
- failure_related_maintenances;
- failure_type.

4.2.39.1 detailed_failure_cause

The detailed_failure_cause attribute specifies details of the cause of failure by referencing a document.

4.2.39.2 failure_cause

The failure_cause attribute specifies the cause of failure.

The value of the failure_cause shall be one of the following:

- assembly_error;
- improper_design;
- improper_manufacturing;
- improper_material;
- installation_error;
- maintenance_error;
- management_error;
- manufacturing_error;
- off_design_service;
- operation_error;
- user_defined_cause.

- 4.2.39.2.1 **assembly_error**: the failure cause descriptor when failure is caused due to assembly deficiencies.
- 4.2.39.2.2 **improper_design**: the failure cause descriptor when failure is caused due to design deficiencies.
- 4.2.39.2.3 **improper_manufacturing**: the failure cause descriptor when failure is caused due to manufacturing deficiencies.
- 4.2.39.2.4 **improper_material**: the failure cause descriptor when failure is caused due to deficiency in material properties.
- 4.2.39.2.5 **installation_error**: the failure cause descriptor when failure is caused due to installation deficiencies.
- 4.2.39.2.6 **maintenance_error**: the failure cause descriptor when failure is caused due to poor or wrong maintenance work.
- 4.2.39.2.7 **management_error**: the failure cause descriptor when failure is caused due to managerial or administrative errors.
- 4.2.39.2.8 **manufacturing_error**: the failure cause descriptor when failure is caused due to manufacturing deficiencies.
- 4.2.39.2.9 **off_design_error**: the failure cause descriptor when failure is caused due to operation under off-design conditions.
- 4.2.39.2.10 **operation_error**: the failure cause descriptor when failure is caused due to errors during normal operation.
- 4.2.39.2.11 **user_defined_cause**: the failure cause descriptor, set by the user, when failure is caused by anything other than the other options.

4.2.39.3 failure_criticality

The failure_criticality attribute specifies the criticality level of a failure.

The value of the failure_criticality shall be one of the following:

- critical_failure;
- non_critical_failure.

4.2.39.3.1 critical_failure: the failure criticality descriptor when failure is classified as critical failure.

4.2.39.3.2 non_critical_failure: the failure criticality descriptor when failure is classified as non-critical failure.

4.2.39.4 failure_descriptor

The failure_descriptor attribute specifies the apparent, observed cause of a failure.

The value of the failure_descriptor shall be one of the following:

- burning;
- burst;
- cavitation;
- clearance_alignment;
- contamination;

- corrosion;
- deformation;
- fatigue;
- leakage;
- looseness;
- short_circuit;
- sticking;
- user_defined_failure_descriptor;
- vibration;
- wear.

4.2.39.4.1 burning: the descriptor which specifies that the failure is caused by a local burning.

4.2.39.4.2 burst: the descriptor which specifies that the failure is caused by bursting.

4.2.39.4.3 cavitation: the descriptor which specifies that the failure is caused by flow cavitation.

4.2.39.4.4 clearance_alignment: the descriptor which specifies that the failure is caused by incorrect clearance alignment.

4.2.39.4.5 contamination: the descriptor which specifies that the failure is due to contamination.

4.2.39.4.6 corrosion: the descriptor which specifies that the failure is caused by corrosion.

4.2.39.4.7 deformation: the descriptor which specifies that the failure is caused by deformation of geometric shape.

4.2.39.4.8 fatigue: the descriptor which specifies that the failure is caused by fatigue.

4.2.39.4.9 leakage: the descriptor which specifies that the failure is caused by fluid leakage.

4.2.39.4.10 looseness: the descriptor which specifies that the failure is caused by looseness of components.

4.2.39.4.11 short_circuit: the descriptor which specifies that the failure is caused by electrical short circuiting.

4.2.39.4.12 sticking together: the descriptor which specifies that the failure is caused by the moving components being stick together.

4.2.39.4.13 user_defined_failure_descriptor: the descriptor, set by the user, which specifies an overall description of the cause of failure if different from the other options.

4.2.39.4.14 vibration: the descriptor which specifies that the failure is caused by excessive vibration.

4.2.39.4.15 wear: the descriptor which specifies that the failure is caused by wear and tear.

4.2.39.5 failure_discovery_description

The failure_discovery_description attribute specifies the manner by which the failure is discovered in text format.

4.2.39.6 failure_effects

The failure_effects attribute specifies various effects of a failure by referencing the Failure_effect (see 4.2.57) application object.

4.2.39.7 failure_mode

The failure_mode attribute specifies the manner by which a failure was discovered.

The value of the failure_mode shall be one of the following:

- erratic_behaviour;
- excessive_noise;
- failed_to_start;
- failed_to_stop;
- high_output;
- leakage;
- low_output;
- overheating;
- unexpected_stop;
- user_defined_mode.

4.2.39.7.1 erratic_behaviour: the failure mode descriptor when failure is discovered in the form of equipment behaving in a erratic manner.

4.2.39.7.2 excessive_noise: the failure mode descriptor when failure is discovered in the form of equipment generating significantly higher than expected noise.

4.2.39.7.3 failed_to_start: the failure mode descriptor when failure is discovered in the form of equipment failing to start on demand.

4.2.39.7.4 failed_to_stop: the failure mode descriptor when failure is discovered in the form of equipment failing to stop on demand.

4.2.39.7.5 high_output: the failure mode descriptor when failure is discovered in the form of higher than expected output.

4.2.39.7.6 leakage: the failure mode descriptor when failure is discovered in the form of unexpected leakage.

4.2.39.7.7 low_output: the failure mode descriptor when failure is discovered in the form of lower than expected output.

4.2.39.7.8 overheating: the failure mode descriptor when failure is discovered in the form of overheating.

4.2.39.7.9 unexpected_stop: the failure mode descriptor when failure is discovered in the form of equipment stopping unexpectedly.

4.2.39.7.10 user_defined_mode: the failure mode descriptor, set by the user, when failure discovered in any other form than the stated options.

4.2.39.8 failure_related_faults

The failure_related_faults attribute specifies the faults which are associated with a failure.

4.2.39.9 failure_related_maintenances

The failure_related_maintenance attribute specifies the maintenance tasks which are associated with a failure.

4.2.39.10 failure_type

The failure_type attribute specifies the classification of failure by discipline.

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The value of the failure_type shall be one of the following:

- electrical_failure;
- mechanical_failure;
- structural_failure;
- user_defined_failure_type.

4.2.39.10.1 electrical_failure: the failure type descriptor when failure relates to the electrical aspects of the product.

4.2.39.10.2 mechanical_failure: the failure type descriptor when failure relates to the mechanical aspects of the product.

4.2.39.10.3 structural_failure: the failure type descriptor when failure relates to the structural aspects of the mechanical product.

4.2.39.10.4 user_defined_failure_type: the failure type descriptor, set by the user, when failure relates to an engineering discipline other than the other options.

4.2.40 Failure_effect

A Failure_effect specifies the data which define various effects of a failure.

The data associated with a Failure_effect are the following:

- failure_effect_description;
- failure_effect_on_ship.

4.2.40.1 failure_effect_description

The failure_effect_description attribute specifies a textual description of the effect of failure.

4.2.40.2 failure_effect_on_ship

The failure_effect_on_ship attribute specifies the effect of failure on a ship.

The value of the failure_effect_on_ship shall be one of the following:

- complete_failure_of_capability;
- degraded_ship_capability;
- normal_ship_operation;
- user_defined_effect_on_ship.

4.2.40.2.1 complete_failure_of_capability: the descriptor that specifies that the failure has caused a complete loss of ship capability.

4.2.40.2.2 degraded_ship_capability: the descriptor that specifies that the failure has some degrading effect on ship capability such as performance, speed and mission.

4.2.40.2.3 normal_ship_operation: the descriptor that specifies that the failure has no significant effect on normal ship operation.

4.2.40.2.4 user_defined_effect_on_ship: the descriptor, set by the user, that specifies the effect of failure on ship if different from other options.

4.2.41 Fault

A Fault is a type of Product_anomaly (see 4.2.146) which specifies the data which are attributable to a mechanical product fault.

The data associated with a Fault are the following:

- fault_cause;
- fault_class;
- fault_method_of_diagnosis;
- fault_related_failures;
- fault_related_maintenances;
- fault_severity_functional;
- fault_severity_safety.

4.2.41.1 fault_cause

The fault_cause attribute specifies a textual description of the causes of the fault.

4.2.41.2 fault_class

The fault_class attribute specifies the type of fault.

The value of fault_class shall be one of the following:

- design_fault;
- mishandling_fault;
- misuse_fault;
- user_defined_fault_class;
- wear_out_fault.

4.2.41.2.1 design_fault: the descriptor which specifies that the fault has occurred because of improper design.

4.2.41.2.2 mishandling_faults: the descriptor which specifies that the fault has occurred due to mishandling of the product.

4.2.41.2.3 misuse_fault: the descriptor which specifies that the fault has occurred due to use of the mechanical product beyond its design and operational limits.

4.2.41.2.4 user_defined_fault: the descriptor, set by the user, which specifies the type of fault if different for the other options.

4.2.41.2.5 wear_out_fault: the descriptor which specifies that the fault has occurred due to wear and tear.

4.2.41.3 fault_method_of_diagnosis

The fault_method_of_diagnosis attribute specifies the method by which the fault has been diagnosed.

The value of fault_method_of_diagnosis shall be one of the following:

- class_survey;
- condition_monitoring_continuous;
- condition_monitoring_periodic;
- corrective_maintenance;
- functional_testing;
- inspection;
- user-defined_method_of_diagnosis.

4.2.41.3.1 class_survey: the descriptor which specifies that the fault has been diagnosed as a result of a classification society survey.

4.2.41.3.2 condition_monitoring_continuous: the descriptor which specifies that the fault has been diagnosed using a continuous condition monitoring system.

4.2.41.3.3 condition_monitoring_periodic: the descriptor which specifies that the fault has been diagnosed as a result of a periodic condition monitoring.

4.2.41.3.4 corrective_maintenance: the descriptor which specifies that the fault has been diagnosed while performing a corrective maintenance task.

4.2.41.3.5 functional_testing: the descriptor which specifies that the fault has been diagnosed by functional testing of the equipment.

4.2.41.3.6 inspection: the descriptor which specifies that the fault has been diagnosed as a result of an inspection.

4.2.41.3.7 user_defined_method_of_diagnosis: the descriptor, set by the user, if the fault has been diagnosed by any other option.

4.2.41.4 fault_related_failures

The `fault_related_failures` attribute specifies the failures which are associated to a fault.

4.2.41.5 fault_related_maintenances

The `fault_related_maintenances` attribute specifies the maintenance tasks which are associated to a fault.

4.2.41.6 fault_severity_functional

The `fault_severity_functional` attribute specifies a descriptor for the severity of the fault in relation to influencing the product's function.

The value of `fault_severity_functional` shall be one of the following:

- `complete_fault`;
- `major_fault`;
- `minor_fault`.

4.2.41.6.1 complete_fault: the descriptor which specifies that the fault is a complete fault, resulting in a complete loss of the product's function.

4.2.41.6.2 major_fault: the descriptor which specifies that the fault is a major fault, resulting in a significant loss of the product's function.

4.2.41.6.3 minor_fault: the descriptor which specifies that the fault is a minor fault, resulting in no significant loss of product's function.

4.2.41.7 fault_severity_safety

The `fault_severity_safety` attribute specifies a descriptor for the severity of the fault in relation to safety of life or major assets.

The value of `fault_severity_safety` shall be one of the following:

- `critical_fault`;
- `non_critical_fault`.

4.2.41.7.1 critical_fault: the descriptor which specifies that the fault is a critical fault.

4.2.41.7.2 non_critical_fault: the descriptor which specifies that the fault is a non-critical fault.

4.2.42 Functional_characteristic

A `Functional_characteristic` is a type of `Functional_definition` (see 4.2.61) and specifies the high level concept for all the definitions (see 3.8.43) which are attributable to the functional characteristics (see 3.8.72) of a mechanical product.

The data associated with a `Functional_characteristic` are the following:

- `function_in_context`

The `function_in_context` attribute specifies and describes the context within which the functional characteristics is needed or going to be used. The `function_in_context` is an optional attribute.

4.2.43 Functional_definition

A `Functional_definition` is a type of `Definition` (see 4.2.30) and specifies the high level concept for all the functional (see 3.8.71) definitions which are attributable to mechanical products.

The data associated with a `Functional_definition` are the following:

- `the_function`;
- `user_def_function`.

4.2.43.1 the_function

The `the_function` attribute specifies the functionality of mechanical product.

4.2.43.2 user_def_function

The `user_def_function` specifies the functionality of mechanical product as assigned by the user.

4.2.44 Gas

A `Gas` specifies the high level concept for all the gaseous materials which need to be defined.

The data associated with a `Gas` are the following:

- `gas_type`;

The `gas_type` attribute specifies the type of gaseous material.

The value of the `gas_type` shall be one of the following:

- `air`;
- `exhaust_gas`;
- `steam`;
- `user_defined_gas`.

4.2.44.1 air: the descriptor which specifies that the gas is air.

4.2.44.2 exhaust_gas: the descriptor which specifies that the gas is exhaust gas.

4.2.44.3 steam: the descriptor which specifies that the gas is steam.

4.2.44.4 user_defined_gas: the descriptor, set by the user, which specifies the type of gas if different from the other options.

4.2.45 Gas_chemical_property

A Gas_chemical_property is a type of Gas_material_property (see 4.2.64) which specifies the chemical properties of a gas.

The data associated with a Gas_chemical_property are the following:

- composition_by_element;
- higher_heating_value;
- ignition_temperature;
- lower_heating_value;
- mean_molecular_weight;
- other_composition.

4.2.45.1 composition_by_element

The composition_by_element attribute specifies the composition of the gas in terms of its chemical elements.

4.2.45.2 higher_heating_value

The higher_heating_value attribute specifies the higher heating value of the gas.

4.2.45.3 ignition_temperature

The ignition_temperature attribute specifies the self-ignition temperature of the gas.

4.2.45.4 lower_heating_value

The lower_heating_value attribute specifies the lower heating value of the gas.

4.2.45.5 mean_molecular_weight

The mean_molecular_weight attribute specifies the mean molecular weight of the gas.

4.2.45.6 other_composition

The other_composition attribute specifies the gas composition in terms of its constituents in a text format.

4.2.46 Gas_material_property

A Gas_material_property is a type of Material_property (see 4.2.103) which specifies the high level concept for all the properties which are attributable to a gas.

The data associated with a Gas_material_property are the following:

- defined_for.

The defined_for attribute specifies the type of gas for which gas properties have been defined.

4.2.47 Gas_physical_property

A Gas_physical_property is a type of Gas_material_property (see 4.2.64) which specifies the physical properties of a gas.

The data associated with a Gas_physical_property are the following:

- density;
- reference_pressure;
- reference_temperature;
- thermal_conductivity;
- viscosity.

4.2.47.1 density

The density attribute specifies the gas density.

4.2.47.2 reference_pressure

The reference_pressure attribute specifies the reference pressure for all the pressure-dependent properties.

4.2.47.3 reference_temperature

The reference_temperature attribute specifies the reference temperature for all the temperature-dependent properties.

4.2.47.4 thermal_conductivity

The thermal_conductivity attribute specifies the gas thermal conductivity.

4.2.47.5 viscosity

The viscosity attribute specifies the gas viscosity.

4.2.48 Geometric_definition

A Geometric_definition is a type of Physical_definition (see 4.2.135) and specifies the high level concept for all the definitions attributable to shape and various dimensional characteristics of a mechanical product.

The data associated with a Geometric_definition are the following:

- usage_in_context.

The usage_in_context attribute specifies for what purpose the geometric definitions are going to be used. The usage_in_context is an optional attribute in text format.

4.2.49 Geometric_representation_item

A Geometric_representation_item is an element of geometric product data that either participates in one or more representations. It is used as defined in ISO 10303-42.

4.2.50 GUID

A GUID is a global unique identifier used for uniquely identifying an externally referenced entity.

The data associated with a GUID are the following:

- company_identification;
- company_name.

4.2.50.1 company_identification

The company_identification attribute is a company-specific unique identification label.

4.2.50.2 company_name

The company_name attribute is the name of the company for which company_identification (see 4.2.69.1) is specified.

4.2.51 Heat_capacity

A Heat_capacity is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the heat capacity of a material.

The data associated with a Heat_capacity are the following:

- heat_capacity_unit.

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The heat_capacity_unit attribute specifies all the units which can be used for heat capacity.

4.2.52 Human_resource

A Human_resource is a type of Task_resource (see 4.2.197) which specifies the data which relate to human resources required to perform a task.

The data associated with a Human_resource are the following:

- man_time;
- personnel.

4.2.52.1 man_time

The man_time attribute specifies the time needed/used to perform a task.

4.2.52.2 personnel

The personnel attribute specifies the particulars of the personnel needed for carrying out the task.

4.2.53 Inertia_moment

An Inertia_moment is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the moment of inertia of something.

The data associated with an Inertia_moment are the following:

- inertia_moment_unit.

The inertia_moment_unit attribute specifies all the units which can be used to specify moment of inertia.

4.2.54 Integer_value

An Integer_value is a holder for a value of type integer, as defined in Clause 8.1.3 of ISO 10303-11:1994.

NOTE - An Integer_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with an Integer_value are the following.

- the_value

The the_value specifies the numeric quantity of the Integer_value.

4.2.55 Item

An Item is a type of Definable_object (see 4.2.29) and specifies the high level concept for any of the ship's items (see 3.8.82) which need to be defined or described.

The data associated with an Item are the following:

- description;
- documentation;
- id;
- ship_context.

4.2.55.1 description

The description specifies a textual description for the item.

4.2.55.2 documentation

The documentation specifies the documentation available, if any, for the item. The documentation is an optional attribute. There may be more than one documentation for an Item.

4.2.55.3 id

The id specifies a text string for identification of the item.

4.2.55.4 ship_context

The ship_context specifies the context of the item in terms of its applicability or belonging to a ship. The ship_context need not be specified for a particular item.

4.2.56 Item_relationship

An Item_relationship is the supertype for all the Mechanical_product_relationship (see 4.2.116) and defines the association between two items.

The data associated with an Item_relationship are the following:

- context;
- item_1;
- item_2.

4.2.56.1 context

The context attribute specifies the significant aspect of the relationship in the form of a label.

4.2.56.2 item_1

The item_1 attribute specifies the first item which takes part in the relationship.

4.2.56.3 item_2

The item_2 attribute specifies the second item which takes part in the relationship.

4.2.57 Item_structure

An Item_structure is a type of Definable_object (see 4.2.29).

The data associated with an Item_structure are the following:

- item_relationships;
- items.

4.2.57.1 item_relationships

The item_relationships attribute specifies the relationship between items which are part of an item_structure.

4.2.57.2 items

The items attribute specifies the particulars of products which belong to a product structure. There may be more than one item for an Item_structure.

4.2.58 Label

A Label application object is used to assign a character label to something. It is used as defined in ISO 10303-41.

4.2.59 Length

A Length is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the length of something.

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The data associated with a Length are the following:

- length_unit.

The length_unit attribute specifies all the units which can be used to specify length.

4.2.60 Liquid

A liquid specifies the high level concept for all the liquid materials which need to be defined.

The data associated with a Liquid are the following:

- liquid_type;

The liquid_type attribute specifies the type of liquid material.

The value of the liquid_type shall be one of the following:

- fuel_oil;
- gas_oil;
- lubrication_oil;
- user_defined_liquid;
- water.

4.2.60.1 fuel_oil: the descriptor which specifies that the liquid is fuel oil.

4.2.60.2 gas_oil: the descriptor which specifies that the liquid is gas oil.

4.2.60.3 lubrication_oil: the descriptor which specifies that the liquid is lubrication oil.

4.2.60.4 user_defined_liquid: the descriptor, set by the user, if the type of liquid is different from the other options.

4.2.60.5 water: the descriptor which specifies that the liquid is water.

4.2.61 Liquid_chemical_property

A Liquid_chemical_property is a type of Liquid_material_property (see 4.2.85) which specifies the chemical properties of a liquid.

The data associated with a Liquid_chemical_property are the following:

- ignition_temperature.

The ignition_temperature attribute specifies the ignition temperature of a liquid.

4.2.62 Liquid_fluid_impurity

A Liquid_fluid_impurity specifies the level of impurities in a liquid.

The data associated with a Liquid_fluid_impurity are the following:

- liquid_impurity_contents;
- metallic_impurity_contents;
- total_sediments_percent.

4.2.62.1 liquid_impurity_contents

The liquid_impurity_contents attribute specifies all the trace liquids together with their percentage level.

4.2.62.2 metallic_impurity_contents

The `metallic_impurity_contents` attribute specifies all the trace metals together with their percentage level.

4.2.62.3 total_sediments_percent

The `total_sediments_percent` attribute specifies the total percentage of sediments (see 3.8.137).

4.2.63 Liquid_impurity

A `Liquid_impurity` specifies the name and level of each liquid-type impurity.

The data associated with a `Liquid_impurity` are the following:

- `liquid_content_percent`;
- `liquidname`.

4.2.63.1 liquid_content_percent

The `liquid_content_percent` attribute specifies the level of impurity in percentage.

4.2.63.2 liquid_name

The `liquid_name` attribute specifies the name of the liquid.

The value of `liquid_name` shall be one of the following:

- `oil`;
- `user_defined_liquid`;
- `water`.

4.2.63.2.1 oil: the descriptor which specifies that the impurity is oil.

4.2.63.2.2 user_defined_liquid: the descriptor, set by the user, which specifies the name of the liquid impurity if different from the other options.

4.2.63.2.3 water: the descriptor which specifies that the impurity is water.

4.2.64 Liquid_material_property

A `Liquid_material_property` is a type of `Material_property` (see 4.2.103) and specifies the high level concept for all the properties which are attributable to liquids.

The data associated with a `Liquid_material_property` are the following:

- `defined_for`.

The `defined_for` attribute specifies the type of liquid for which the properties are being defined.

4.2.65 Liquid_physical_property

A `Liquid_physical_property` is a type of `Liquid_material_property` (see 4.2.85) which specifies the physical properties of a liquid.

The data associated with a `Liquid_physical_property` are the following:

- `density`;
- `flash_point`;
- `heat_capacity`;
- `impurities`;
- `pour_point`;

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- reference_pressure;
- reference_temperature;
- surface_tension;
- thermal_conductivity;
- viscosity.

4.2.65.1 density

The density attribute specifies the liquid density at reference temperature.

4.2.65.2 flash_point

The flash_point attribute specifies the liquid flash point.

4.2.65.3 heat_capacity

The heat_capacity attribute specifies the liquid heat capacity at reference temperature.

4.2.65.4 impurities

The impurities attribute specifies the level of different impurities in the liquid.

4.2.65.5 pour_point

The pour_point attribute specifies the liquid pour point.

4.2.65.6 reference_pressure

The reference_pressure attribute specifies the reference pressure for all the pressure-dependent properties.

4.2.65.7 reference_temperature

The reference_temperature attribute specifies the reference temperature for all the temperature-dependent properties.

4.2.65.8 surface_tension

The surface_tension attribute specifies the liquid surface tension at reference temperature.

4.2.65.9 thermal_conductivity

The thermal_conductivity attribute specifies the liquid thermal conductivity at reference temperature.

4.2.65.10 viscosity

The viscosity attribute specifies the liquid viscosity at reference temperature.

4.2.66 Local_co_ordinate_system

A Local_co_ordinate_system is used to locate something in space. A Local_co_ordinate_system is always defined with respect to another coordinate system, this might be the global coordinate system or another local coordinate system.

NOTES

1 – The local axes directions are called U, V, W. The local W-direction is normal to the plane, defined by local_u and local_v

2 – A local coordinate system shall form a right handed system.

The data associated with a Local_coordinate_system are the following:

- local_u;
- local_v;
- local_w;
- parent_to_coordinate_system;

- u_value;
- v_value;
- w_value.

4.2.66.1 local_u

The local_u attribute specifies the local axis, defined in the underlying coordinate system, global or local.

4.2.66.2 local_v

The local_v attribute specifies the local axis perpendicular to local_u, defined in the underlying coordinate system, global or local.

4.2.66.3 local_w

The local_w attribute specifies the local axis perpendicular to local_u and local_v, defined in the underlying coordinate system, global or local.

4.2.66.4 parent_to_coordinate_system

The parent_to_coordinate_system attribute specifies the underlying coordinate system which serves as definition space for this coordinate system. The parent coordinate system will be specified in text format.

4.2.66.5 u_value

The u_value attribute specifies the coordinate for the origin, value along parent u-axis.

4.2.66.6 v_value

The v_value attribute specifies the coordinate for the origin, value along parent v-axis.

4.2.66.7 w_value

The w_value attribute specifies the coordinate for the origin, value along parent w-axis.

4.2.67 Logical_value

A Logical_value is a holder for a value of type logical, as defined in Clause 8.1.4 of ISO 10303-11:1994.

NOTE - An Logical_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a Logical_value are the following.

- the_value

The the_value specifies whether the value is TRUE, FALSE or UNKNOWN.

4.2.68 Maintainability

A Maintainability specifies the data which are attributable to the maintainability performance (see 3.7) of a mechanical product.

The data associated with a Maintainability are the following:

- maintainability;
- mean_logistic_delay;
- mean_maintenance_man_hour;
- mean_time_to_repair.

4.2.68.1 maintainability

The maintainability attribute specifies the probability that a given maintenance action can be completed within a stated time interval.

4.2.68.2 mean_logistic_delay

The mean_logistic_delay attribute specifies the level of delays due to logistical problems in relation to the maintenance of a product.

4.2.68.3 mean_maintenance_man_hour

The mean_maintenance_man_hour attribute specifies the level of expected man-hours for maintenance actions.

4.2.68.4 mean_time_to_repair

The mean_time_to_repair attribute specifies the maintainability performance of a product in terms of its expected/actual mean time to repair.

4.2.69 Maintenance_configuration_data

A Maintenance_configuration_data is a type of Task_configuration (see 4.2.191) that specifies the configuration (see 3.8.32) for a maintenance task.

The data associated with the Maintenance_configuration_data are the following:

- defined_for;
- maintenance_class_by_discipline;
- maintenance_type;
- maintenance_type_iso.

4.2.69.1 defined_for

The defined_for attribute specifies a set of one to many maintenance tasks for which configuration data are defined.

4.2.69.2 maintenance_class_by_discipline

The maintenance_class_by_discipline attribute specifies the classification of maintenance by engineering discipline.

The value of maintenance_class_by_discipline shall be one of the following:

- electrical;
- electronic;
- mechanical;
- user_defined_discipline.

4.2.69.2.1 electrical: the descriptor which specifies that the maintenance relates to the electrical aspect of the product.

4.2.69.2.2 electronic: the descriptor which specifies that the maintenance relates to the electronic aspect of the product.

4.2.69.2.3 mechanical: the descriptor which specifies that the maintenance relates to the mechanical aspect of the product.

4.2.69.2.4 user_defined_discipline: the descriptor, to be set by the user, which specifies the maintenance related engineering discipline, if different from the other options.

4.2.69.3 maintenance_type

The maintenance_type attribute specifies the type of maintenance.

The value of `maintenance_type` shall be one of the following:

- `corrective`;
- `preventive_condition_based`;
- `preventive_time_based`.

4.2.69.3.1 `corrective`: the descriptor which specifies that the maintenance is of type `corrective` maintenance.

4.2.69.3.2 `preventive_condition_based`: the descriptor which specifies that the maintenance is of type `preventive` maintenance and is based on the condition of the product rather than a pre-defined time schedule.

4.2.69.3.3 `preventive_time_based`: the descriptor which specifies that the maintenance is of type `preventive` maintenance and is based on a pre-defined time schedule.

4.2.69.4 `maintenance_type_iso`

The `maintenance_type_iso` attribute specifies the type of maintenance according to IEC 50 standard.

The value of `maintenance_type_iso` shall be one of the following:

- `corrective`;
- `preventive`.

4.2.69.4.1 `corrective`: the descriptor which specifies that the maintenance is of type `corrective` maintenance.

4.2.69.4.2 `preventive`: the descriptor which specifies that the maintenance is of type `preventive` maintenance.

4.2.70 `Maintenance_human_resource`

A `Maintenance_human_resource` is a type of `Human_resource` (see 4.2.72) that specifies the human resources needed to perform the maintenance task.

The data associated with a `Maintenance_resource` are the following:

- `defined_for`.

The `defined_for` attribute specifies a set of one to many maintenance tasks for which human resources need to be defined.

4.2.71 `Maintenance_procedure`

A `Maintenance_procedure` is a type of `Task_procedure` (see 4.2.195) that specifies the procedures for carrying out a maintenance task.

The data associated with a `Maintenance_procedure` are the following:

- `defined_for`.

The `defined_for` attribute specifies a set of one to many maintenance tasks for which maintenance procedures need to be defined.

4.2.72 `Maintenance_result`

A `Maintenance_result` is a type of `Task_result` (see 4.2.198) that specifies the results of a maintenance task.

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The data associated with a Maintenance_result are the following:

- defined_for.

The defined_for attribute specifies a set of one to many maintenance tasks for which maintenance results need to be defined.

4.2.73 Maintenance_schedule

A Maintenance_schedule is a type of Task_schedule (see 4.2.199) which specifies the schedule needed for a maintenance task.

The data associated with a Maintenance_schedule are the following:

- defined_for.

The defined_for attribute specifies a set of one to many maintenance tasks for which the schedule needs to be defined.

4.2.74 Maintenance_spare_part

A Maintenance_spare_part is a type of Spare_part (see 4.2.181) which specifies the spare parts needed for a maintenance task.

The data associated with a Maintenance_spare_part are the following:

- defined_for.

The defined_for attribute specifies a set of one to many maintenance tasks for which the spare parts need to be defined.

4.2.75 Maintenance_task

A Maintenance_task is a type of Task (see 4.2.189) which specifies the high level concept for all the maintenance tasks (see 3.8.155) which need to be defined.

The data associated with a Maintenance_task are the following:

- maintenance_category;
- maintenance_related_failures.

4.2.75.1 maintenance_category

The maintenance_category attribute specifies the category of maintenance in terms of main maintenance activities.

The value of maintenance_category shall be one of the following:

- adjust;
- refit;
- repair;
- replace;
- service;
- user_defined_category.

- 4.2.75.1.1 adjust:** the descriptor which specifies that the main activity of the maintenance task is the adjustment of a product or its components.
- 4.2.75.1.2 refit:** the descriptor which specifies that the main activity of the maintenance task is the refit of a product or its components.
- 4.2.75.1.3 repair:** the descriptor which specifies that the main activity of the maintenance task is the repair of a product or its components.
- 4.2.75.1.4 replace:** the descriptor which specifies that the main activity of the maintenance task is the replacement of a product or its components.
- 4.2.75.1.5 service:** the descriptor which specifies that the main activity of the maintenance task is to service a product or its components.
- 4.2.75.1.6 user_defined_category:** the descriptor, set by the user, which specifies the maintenance category, if different from the other options.

4.2.75.2 maintenance_related_failures

The `maintenance_related_failures` attribute specifies the failures which are related to the maintenance.

4.2.76 Mass

A `Mass` is a type of `Measure_with_unit` (see 4.2.104) where the physical quantity is a mass as defined in ISO 31 (clause 2).

The data associated with a `Mass` are the following:

- `mass_unit`.

The `mass_unit` attribute specifies all the units which can be used for mass.

4.2.77 Material_property

A `Material_property` specifies the high level concept and data for all types of material properties. The `Material_property` is the supertype for `Gas_material_property` (see 4.2.64), `Liquid_material_property` (see 4.2.85) and `Solid_material_property` (see 4.2.179).

The data associated with a `Material_property` are the following:

- `description`;
- `version_id`.

4.2.77.1 description

The `description` attribute specifies a general description of the material and its properties in text format.

4.2.77.2 version_id

The `version_id` attribute specifies an identification label for a set of material properties.

4.2.78 Measure_with_unit

A `Measure_with_unit` is the specification of a physical quantity as defined in ISO 31 (clause 2). Each `Measure_with_unit` may be one of the following: a `Density` (see 4.2.31), a `Dilatation` (see 4.2.39), a `Heat_capacity` (see 4.2.70), an `Inertia_moment` (see 4.2.73), a `Length` (see 4.2.78), a `Mass` (see 4.2.101), a `Plane_angle` (see 4.2.141), a `Power` (see 4.2.142), a `Pressure` (see 4.2.144), a `Ratio` (see 4.2.160), a `Stress` (see 4.2.184), a `Surface_tension` (see 4.2.187), a `Temperature` (see 4.2.200), a `Thermal_conductivity` (see 4.2.202), a `Time` (see 4.2.203), and a `Viscosity` (see 4.2.212).

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The data associated with a Measure_with_unit are the following:

- qualifier;
- value.

4.2.78.1 qualifier

The qualifier attribute specifies additional information in text format which describes the scope of the value. Aspects such as normalisation, correction, averaging, measured/predicted/estimated can be specified using the qualifier attribute.

4.2.78.2 value

The value attribute specifies the value of the physical quantity when expressed in the specified units.

4.2.79 Mechanical_connection

A Mechanical_connection is a type of Mechanical_product_connection (see 4.2.113) which specifies the connection between two mechanical components (see 3.8.98).

The data associated with a Mechanical_connection are the following:

- connection_type.

The connection_type attribute specifies the type of mechanical connection.

The value of the connection_type shall be one of the following:

- shaft_bearing_interface;
- shaft_component_connection;
- shaft_shaft_connection.

4.2.79.1 shaft_bearing_interface: the descriptor which specifies that the mechanical connection is an interface between a shaft and a bearing.

4.2.79.2 shaft_component_connection: the descriptor which specifies that the mechanical connection is between a shaft and another component type.

4.2.79.3 shaft_shaft_connection: the descriptor which specifies that the mechanical connection is between two shafts.

4.2.79.4 reciprocating_machinery: the descriptor which specifies that the mechanical machinery is of type reciprocating machinery.

4.2.79.5 rotating_machinery: the descriptor which specifies that the mechanical machinery is of type rotating machinery.

4.2.80 Mechanical_machinery_composition

A Mechanical_machinery_composition is a type of Product_composition (see 4.2.148) and specifies the high level concept for all the product composition (see 3.8.26) data which are attributable to all types of mechanical machinery.

The data associated with a Mechanical_machinery_composition are the following:

- defined_for;
- list_of_auxiliary_systems.

4.2.80.1 defined_for

The defined_for attribute specifies a set of one to many mechanical machinery for which the definitions are defined.

4.2.80.2 list_of_auxiliary_systems

The `list_of_auxiliary_systems` attribute specifies all the auxiliary systems (see 3.8.11) needed for the mechanical machinery. The `list_of_auxiliary_systems` is a DERIVED attribute from the higher level product structure definitions.

4.2.81 Mechanical_machinery_identification

A `Mechanical_machinery_identification` is a type of `MP_equipment_identification` (see 4.2.124) and specifies the concept for collecting all the definitions which are attributable to the identification of all types of mechanical machinery.

The data associated with a `Mechanical_machinery_identification` are the following:

- `defined_for`;
- `licence_number`;
- `licensor`.

4.2.81.1 defined_for

The `defined_for` attribute specifies a set of one to many mechanical machinery for which the definitions are defined.

4.2.81.2 licence_number

The `licence_number` attribute specifies the machinery manufacturing licence number in the form of a label.

4.2.81.3 licensor

The `licensor` attribute specifies the organisation under whose licence the machinery is being manufactured.

4.2.82 Mechanical_product

A `Mechanical_product` is a type of `Item` (see 4.2.74) which provides the high level concept for all the mechanical products (see 3.8.103) which need to be defined or described.

The data associated with a `Mechanical_product` are the following:

- `definition`;
- `standard_definition`;
- `standard_name`;
- `task_in_context`;
- `version_id`.

4.2.82.1 definition

The `definition` specifies the class in a parts library conforming to ISO 13584-42:—¹⁾ that identifies the kind of mechanical product and its associated properties. The `definition` shall refer to a class in the parts library contained in Annex M.

4.2.82.2 standard_definition

The `standard_definition` attribute specifies a textual definition of the mechanical product. The `standard_definition` shall be according to this part of ISO 10303.

4.2.82.3 standard_name

The `standard_name` attribute specifies the standard name of the mechanical product. The `standard_name` shall be according to this part of ISO 10303.

¹⁾ To be published.

4.2.82.4 task_in_context

The `task_in_context` attribute specifies the tasks which are related to this mechanical product by referencing the Task (see 4.2.189) application object.

4.2.82.5 version_id

The `version_id` attribute specifies a simple mechanism for version identification of the mechanical product.

4.2.83 Mechanical_product_connection

A `Mechanical_product_connection` is a type of `Product_connection` (see 4.2.149) and a type of `Mechanical_product_relationship` (see 4.2.116) and specifies the high level concept for all the definitions which relate to connection (see 3.8.34) of a mechanical product to another item.

The data associated with a `Mechanical_product_connection` are the following:

- `connecting_components`;
- `connection_characteristics`;
- `connection_specifications`;
- `connector_1`;
- `connector_2`.

4.2.83.1 connecting_components

The `connecting_components` attribute specifies all the connecting components (see 3.8.33) required in order to realise the connection.

4.2.83.2 connection_characteristics

The `connection_characteristics` attribute specifies all the operational and functional characteristics for the connection.

4.2.83.3 connection_specifications

The `connection_specifications` attribute specifies all the engineering specifications (geometric, non-geometric, installation procedure, ...) for the connection.

4.2.83.4 connector_1

The `connector_1` attribute specifies the first connector (see 3.8.35) for the connection.

4.2.83.5 connector_2

The `connector_2` attribute specifies the second connector (see 3.8.35) for the connection.

4.2.84 Mechanical_product_drawing

A `Mechanical_product_drawing` is a type of `Mechanical_product_representation` (see 4.2.117) and specifies the geometric representation of mechanical product in the form of one to many CAD drawings together with identification of the drawing configuration.

The data associated with a `Mechanical_product_drawing` are the following:

- `defined_for`;
- `drawing`;
- `drawing_configurations`.

4.2.84.1 defined_for

The `defined_for` attribute specifies a set of one to many mechanical products for which drawing is defined.

4.2.84.2 drawing

The drawing attribute specifies the representation of mechanical product in the form of a CAD drawing. This is supported through use of a Geometric_representation_item (see 4.2.68) as defined in ISO 10303-42.

4.2.84.3 drawing_configurations

The drawing_configurations attribute specifies all the information which is necessary for identification of a drawing.

4.2.85 Mechanical_product_relationship

A Mechanical_product_relationship defines the relationship and association between two mechanical products.

The data associated with a Mechanical_product_relationship are the following:

- major_aspect_of_relationship;
- mechanical_product_1;
- mechanical_product-2.

4.2.85.1 major_aspect_of_relationship

The major_aspect_of_relationship specifies a description of how the two mechanical products are related together.

4.2.85.2 mechanical_product_1

The mechanical_product_1 attribute specifies the first mechanical product which takes part in the relationship.

4.2.85.3 mechanical_product_2

The mechanical_product_2 attribute specifies the second mechanical product which takes part in the relationship.

4.2.86 Mechanical_product_representation

A Mechanical_product_representation is a type of Geometric_definition (see 4.2.67) and specifies the concept for detailed geometry of a mechanical product. A Mechanical_product_representation is either a Mechanical_product_shape_representation (see 4.2.118) or a Mechanical_product_drawing (see 4.2.114).

4.2.87 Mechanical_product_shape_representation

A Mechanical_product_shape_representation is a type of Mechanical_product_representation (see 4.2.117) and specifies the external shape of a mechanical product.

The data associated with a Mechanical_product_shape_representation are the following:

- defined_for;
- shape_solid;
- plib_shape_representation;
- external_reference_shape_representation.

4.2.87.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which shape is defined.

4.2.87.2 shape_solid

The shape_solid attribute specifies the external shape representation of the mechanical product in the form of a solid model (see 3.8.144). The shape representation is supported by Solid_model (see 4.2.180).

4.2.87.3 **PLIB_shape_representation**

The `plib_shape_representation` attribute specifies for the mechanical product the shape representation that is contained in a parts library conforming to ISO 13584-42:—¹⁾. There may be more than one `PLIB_shape_representation` for a `Mechanical_product_shape_representation`. The `PLIB_shape_representation` need not be specified for a particular `Mechanical_product_shape_representation`.

4.2.87.4 **external_reference_shape_representation**

The `plib_shape_representation` attribute specifies for the mechanical product the shape representation that is contained in an external file or database. There may be more than one `external_shape_representation` for a `Mechanical_product_shape_representation`. The `external_shape_representation` need not be specified for a particular `Mechanical_product_shape_representation`.

4.2.88 **Metallic_impurity**

A `Metallic_impurity` specifies the name and level of each metallic-type impurity.

The data associated with a `Metallic_impurity` are the following:

- `metal_name`;
- `metallic_content_percent`.

4.2.88.1 **metal_name**

The `metal_name` attribute specifies the name of the metal.

The value of `metal_name` shall be one of the following:

- `iron`;
- `potassium`;
- `sodium`;
- `user_defined_metal`.

4.2.88.1.1 iron: the descriptor which specifies that the metallic impurity is iron.

4.2.88.1.2 potassium: the descriptor which specifies that the metallic impurity is potassium.

4.2.88.1.3 Sodium: the descriptor which specifies that the metallic impurity is sodium.

4.2.88.1.4 user_defined_metal: the descriptor, set by the user, which specifies the name of a metal if different from the other options.

4.2.88.2 **metallic_content_percent**

The `metallic_content_percent` specifies the level of impurity in percentage.

4.2.89 **MP_equipment_identification**

A `MP_equipment_identification` is a type of `Product_identification` (see 4.2.152) and specifies the concept for collecting all the definitions which are attributable to the identification of the equipment.

The data associated with a `MP_equipment_identification` are the following:

- `acquisition-code`;
- `category_code`;
- `id_manufacture_specific`;

¹⁾ To be published.

- id_user_specific;
- model_number;
- model_type;
- nameplate_data;
- place_of_manufacture.

4.2.89.1 acquisition_code

The acquisition_code attribute specifies the equipment acquisition code (see 3.8.1).

4.2.89.2 category_code

The category_code attribute specifies the category code of the equipment.

4.2.89.3 id_manufacturer_specific

The id_manufacturer_specific attribute specifies the equipment identification by the manufacturer or supplier.

4.2.89.4 id_user_specific

The id_user_specific attribute specifies the equipment identification number by user.

4.2.89.5 model_number

The model_number attribute specifies the model number of the equipment.

4.2.89.6 model_type

The model_type attribute specifies the model type of the equipment.

4.2.89.7 nameplate_data

The nameplate_data attribute specifies the information content as appears on the equipment nameplate in a text format.

4.2.89.8 place_of_manufacture

The place_of_manufacture attribute specifies the place of manufacture of the equipment.

4.2.90 Operation_task

An Operation_task is a type of Task (see 4.2.189) and specifies the concept for collecting data which are attributable to an operation task.

The data associated with an Operation_task are the following:

- type_of_task.

The type_of_task attribute specifies the type of operation task in a text format.

4.2.91 Operational_characteristic

An Operational_characteristic is a type of Functional_characteristic (see 4.2.60) and specifies the high level concept for all the definitions (see 3.8.43) which are attributable to operational aspects of a mechanical product.

The data associated with an Operational_characteristic are the following:

- defined_for;
- operation_status.

4.2.91.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which operational data are defined.

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4.2.91.2 operation_status

The operation_status attribute specifies the operating condition of the mechanical product in a text format.

4.2.92 Organization

An Organization specifies the details of the referenced organisation. It is used as defined in ISO 10303-41.

4.2.93 Organizational_project

An Organizational_project specifies the details of the referenced project. It is used as defined in ISO 10303-41.

4.2.94 Other_task

An Other_task is a type of Task (see 4.2.189) and specifies the concept for collecting data which are attributable to any user defined task not explicitly defined in other application objects.

The data associated with an Other_task are the following:

- type_of_task.

The type_of_task attribute specifies the type of the task in a text format.

4.2.95 Person

A Person specifies the details of a person which needs to be identified. It is used as defined in ISO 10303-41.

4.2.96 Person_and_organization

A Person_and_organization specifies the details of a person and his/her affiliated organisation. It is used as defined in ISO 10303-41.

4.2.97 Physical_definition

A Physical_definition is a type of Definition (see 4.2.30) and specifies the high level concept for all the definitions attributable to the physical (see 3.8.111) aspects of a mechanical product.

4.2.98 Piping_connection

A Piping_connection is a type of Mechanical_product_connection (see 4.2.113) which specifies the connection between a mechanical connector (see 3.8.99) and a piping connector (see 3.8.112) or between two piping connectors.

The data associated with a Piping_connection are the following:

- connection_type.

The connection_type attribute specifies the type of piping connection.

The value of the connection_type shall be one of the following:

- butt;
- flanged;
- flared;
- screwed;
- socketed;

- union;
- user_defined_piping_connection_type;
- welded.

4.2.98.1 butt: the descriptor which specifies that the piping connection is of type butt welded.

4.2.98.2 flanged: the descriptor which specifies the piping connection is of type flanged.

4.2.98.3 flared: the descriptor which specifies the piping connection is of type flared.

4.2.98.4 screwed: the descriptor which specifies the piping connection is of type screwed.

4.2.98.5 socketed: the descriptor which specifies the piping connection is of type socketed.

4.2.98.6 union: the descriptor which specifies the piping connection is of type union.

4.2.98.7 user_defined_piping_connection_type: the descriptor, set by the user, which specifies the type of piping connection if different from the other options.

4.2.98.8 welded: the descriptor which specifies the piping connection is of type welded.

4.2.99 Plane_angle

A `Plane_angle` is a type of `Measure_with_unit` (see 4.2.104) where the physical quantity is a plane angle as defined in ISO 31 (clause 2).

The data associated with a `Plane_angle` are the following:

`plane_angle_unit`.

The `plane_angle_unit` attribute specifies all the units in which plane angles are measured.

4.2.100 PLIB_class_reference

A `PLIB_class_reference` is a pointer to a class in a parts library that complies with ISO 13584-42:—¹⁾.

The data associated with a `PLIB_class_reference` are the following.

- `class_BSU`

The `class_bsu` is the unique identification of the class in the parts library.

4.2.101 PLIB_defined_shape_representation

A `PLIB_defined_shape_representation` is a shape representation of a mechanical product contained in a parts library conforming to ISO 13584-42:—²⁾

The data associated with a `PLIB_defined_shape_representation` are the following.

- `axis2_placement`;
- `definitional_class_bsu`;
- `definitional_property_bsu`.

4.2.101.1 axis2_placement

The `axis2_placement` attribute specifies the position of the shape representation with respect to the mechanical products' local coordinate system.

¹⁾ To be published.

²⁾ To be published.

4.2.101.2 definitional_class_bsu

The `definitional_class_bsu` attribute identifies the class in a parts library conforming to ISO 13584-42:—¹⁾ to which the shape representation belongs.

4.2.101.3 definitional_property_value_pairs

The `definitional_property_value` specifies the bindings of property and value that identify an instance of the class in the parts library.

4.2.102 PLIB_property_reference

A `PLIB_property_reference` is a pointer to a property in a parts library that complies with ISO 13584-42:—²⁾.

The data associated with a `PLIB_property_reference` are the following.

- `property_value_pairs`

The `property_value_pairs` defines an assignment of a value to a property that is defined in a parts library conforming to ISO 13584-42:—³⁾. There may be more than one `property_value_pairs` for a `PLIB_property_reference`.

4.2.103 Power

A `Power` is a type of `Measure_with_unit` (see 4.2.104) where the physical quantity is power (energy per time).

The data associated with a `Power` are the following:

- `power_unit`.

The `power_unit` attribute specifies all the units in which the physical quantity of power is measured.

4.2.104 Pressure

A `Pressure` is a type of `Measure_with_unit` (see 4.2.104) where the physical quantity is pressure (force per area).

The data associated with a `Pressure` are the following:

- `pressure_unit`.

The `pressure_unit` attribute specifies all the units in which the physical quantity of pressure is measured.

4.2.105 Product_anomaly

A `Product_anomaly` is a type of `Definition` (see 4.2.30) and specifies the high level concept for all the definitions attributable to all types of product anomalies (see 3.8.6).

The data associated with a `Product_anomaly` are the following:

- `anomaly_cause`;
- `anomaly_description`;
- `anomaly_related_tasks`;

¹⁾ To be published.

²⁾ To be published.

³⁾ To be published.

- date_anomaly_discovered;
- date_anomaly_happened;
- date_anomaly_rectified.

4.2.105.1 anomaly_cause

The anomaly_cause attribute specifies the cause of the anomaly in text format.

4.2.105.2 anomaly_description

The anomaly_description attribute specifies a description of the anomaly in text format.

4.2.105.3 anomaly_related_tasks

The anomaly_related_tasks attribute specifies a set of tasks which relate to an anomaly.

4.2.105.4 date_anomaly_discovered

The date_anomaly_discovered attribute specifies the date at which the anomaly has been discovered.

4.2.105.5 date_anomaly_happened

The date_anomaly_happened attribute specifies the date at which the anomaly has occurred.

4.2.105.6 date_anomaly_rectified

The date_anomaly_rectified attribute specifies the date at which the anomaly has been rectified through corrective action.

4.2.106 Product_assembly

A Product_assembly is a type of Product_structure_definition (see 4.2.157) which specifies the high level concept for all the information which defines the assembly of the mechanical product .

The data associated with a Product_assembly are the following:

- assembly_defined_by_relationships;
- defined_for;
- method_of_assembly.

4.2.106.1 assembly_defined_by_relationships

The assembly_defined_by_relationships attribute specifies all the relationships between the constituent items of the mechanical product.

4.2.106.2 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which assembly data are defined.

4.2.106.3 method_of_assembly

The method_of_assembly attribute specifies the information which describes the method of assembly and disassembly in the form of documents.

4.2.107 Product_composition

A Product_composition is a type of Product_structure_definition (see 4.2.157) which specifies the high level concept for all the definitions which relate to the composition (see 3.8.26) of a mechanical product .

The data associated with a Product_composition are the following:

- composed_of;
- defined_for;
- no_of_each_component.

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4.2.107.1 composed_of

The composed_of attribute specifies details of a set of mechanical products which are members of composition (see 3.8.26) for this mechanical product.

4.2.107.2 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which product composition data are defined.

4.2.107.3 no_of_each_component

The no_of_each_component attribute specifies the number of each mechanical product in the composition. The no_of_each_component is a DERIVED attribute.

4.2.108 Product_connection

A Product_connection specifies the high level concept for all the information which define the connection (see 3.8.34) of two mechanical products.

The data associated with a Product_connection are the following:

- connection_type;
- relates_to.

4.2.108.1 connection_type

The connection_type attribute specifies the type of connection.

The value of connection_type shall be one of the following:

- electrical_connection;
- mechanical_connection;
- piping_connection;
- structural_connection;
- user_defined_connection_type.

4.2.108.1.1 electrical_connection: the descriptor which specifies that the connection is of type electrical connection.

4.2.108.1.2 mechanical_connection: the descriptor which specifies that the connection is of type mechanical connection.

4.2.108.1.3 piping_connection: the descriptor which specifies that the connection is of type piping connection.

4.2.108.1.4 structural_type: the descriptor which specifies that the connection is of type structural type.

4.2.108.1.5 user_defined_connection_type: the descriptor, set by the user, which specifies the type of connection if different from the other options.

4.2.108.2 relates_to

The relates_to attribute specifies the relation between a product connection and a product connectivity (see 3.8.124) through reference to Product_connectivity (see 4.2.150) application object.

4.2.109 Product_connectivity

A Product_connectivity is a type of Product_structure_definition (see 4.2.157) and specifies the high level concept for all the definitions which relate to product connectivity (see 3.8.124) of a mechanical product.

The data associated with a Product_connectivity are the following:

- defined_for;
- no_of_connections;
- product_connections;
- product_connectivity_specifications;
- product_is_connected_to.

4.2.109.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which connectivity data are defined.

4.2.109.2 no_of_connections

The no_of_connections attribute specifies the total number of connections of the mechanical product. The no_of_connections is a DERIVED attribute.

4.2.109.3 product_connections

The product_connections attribute specifies all types of connection for the product by referencing the Product_connection (see 4.2.149) application object.

4.2.109.4 product_connectivity_specifications

The product_connectivity_specifications attribute specifies the overall specification of the connectivity by referencing external documents.

4.2.109.5 product_is_connected_to

The product_is_connected_to attribute specifies all the mechanical products which are connected to this mechanical product.

4.2.110 Product_context

A Product_context is a type of Configuration definition (see 4.2.12) and specifies the data which define the context within which a mechanical product is used or considered.

The data associated with a Product_context are the following:

- defined_for;
- owner_in_context;
- project_in_context;
- ship_in_context.

4.2.110.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which the context data are defined.

4.2.110.2 owner_in_context

The owner_in_context attribute specifies the organisations which own the mechanical product.

4.2.110.3 project_in_context

The project_in_context attribute specifies the projects associated with the mechanical product.

4.2.110.4 ship_in_context

The ship_in_context attribute specifies the ships associated with the mechanical product.

4.2.111 Product_identification

A Product_identification is a type of Configuration_definition (see 4.2.12) and specifies the high level data needed for identification of a mechanical product.

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The data associated with a Product_identification are the following:

- defined_for;
- manufacturer;
- serial_number;
- tag_number;
- user_id.

4.2.111.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which identification data are defined.

4.2.111.2 manufacturer

The manufacturer attribute specifies the details of the organisation which is the manufacturer of the mechanical product.

4.2.111.3 serial_number

The serial_number attribute specifies the manufacturer's serial number in the form of a label.

4.2.111.4 tag_number

The tag_number attributes specifies the mechanical product's tag number in the form of a label.

4.2.111.5 user_id

The user_id attribute specifies a user-defined identification in text format.

4.2.112 Product_material

A Product_material is a type of Physical_definition (see 4.2.135) which provides the concept for identification of the solid materials from which a mechanical product is made of.

The data associated with a Product_material are the following:

- defined_for;
- documented_definitions;
- material_code;
- material_description;
- material_name.

4.2.112.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which material data are defined.

4.2.112.2 documented_definitions

The documented_definitions attribute specifies references to the documents which define the properties of the material.

4.2.112.3 material_code

The material_code attribute specifies an identification code for the material in the form of a label.

4.2.112.4 material_description

The material_description attribute specifies a description of the material in a text form.

4.2.112.5 material_name

The material_name attribute specifies the name of the material in the form of a label.

4.2.113 Product_participation

A Product_participation is a type of Product_structure_definition (see 4.2.157) which specifies the high level concept for all the definitions which relate to the belonging of a mechanical product to another higher level mechanical product in the decomposition hierarchy (see 3.8.42).

The data associated with a Product_participation are the following:

- defined_for;
- product_is_part_of.

4.2.113.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which participation data are defined.

4.2.113.2 product_is_part_of

The product_is_part_of attribute specifies the higher level mechanical product in the decomposition hierarchy, which this mechanical product is part of it.

4.2.114 Product_placement

A Product_placement is a type of Product_structure_definition (see 4.2.157) which specifies the high level concept for all the definitions which relate to position and orientation of mechanical product.

The data associated with a Product_placement are the following:

- defined_for;
- orientation;
- placed_in;
- place_by_coordinate;
- ship_side.

4.2.114.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which product placement and location data are defined.

4.2.114.2 orientation

The orientation attribute specifies the orientation of the mechanical product in a text format.

4.2.114.3 placed_in

The placed_in attribute specifies the compartment and/or space of the ship within which the mechanical product is located through a reference to Ship_space (see 4.2.178) application object.

4.2.114.4 place_by_coordinate

The place_by_coordinate attribute specifies the position of the mechanical product within the context of a local coordinate system.

4.2.114.5 ship_side

The ship_side attribute specifies the position and/or orientation of the mechanical product according to the side of the ship where it is located.

The value of ship_side shall be one of the following:

- aft;
- fore;
- user_defined_side_of_ship.

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4.2.114.5.1 aft: The descriptor which specifies the side of the ship as aft (see 3.8.3).

4.2.114.5.2 fore: The descriptor which specifies the side of ship as fore (see 3.8.67).

4.2.114.5.3 user_defined_side_of_ship: The descriptor, set by the user, which specifies the side of ship if different from the other options.

4.2.115 Product_status

A Product_status is a type of configuration_definition (see 4.2.12) and specifies the data which define the life cycle status of a mechanical product.

The data associated with a Product_status are the following:

- defined_for;
- life_cycle_phase;
- reality_status.

4.2.115.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which product status data are defined.

4.2.115.2 life_cycle_phase

The life_cycle_phase attribute specifies the life cycle phase of the mechanical product.

The value of life_cycle_phase shall be one of the following:

- design_phase;
- disposal_phase;
- installation_phase;
- manufacturing_phase;
- operation_phase;
- specification_phase.

4.2.115.2.1 design_phase: the descriptor which specifies that the product is at its design lifecycle phase.

4.2.115.2.2 disposal_phase: the descriptor which specifies that the product is at its disposal phase.

4.2.115.2.3 installation_phase: the descriptor which specifies that the product is at its installation phase.

4.2.115.2.4 manufacturing_phase: the descriptor which specifies that the product is at its manufacturing phase.

4.2.115.2.5 operation_phase: the descriptor which specifies that the product is at its operation phase.

4.2.115.2.6 specification_phase: the descriptor which specifies that the product is at its specification phase.

4.2.115.3 reality_status

The reality_status attribute specifies whether the mechanical product is a conceptual, planned, manufactured or disposed product.

The value of reality_status phase shall be one of the following:

- conceptual;
- designed;

- disposed;
- planned;
- real.

4.2.115.3.1 conceptual: the descriptor which specifies that the product is at concept level.

4.2.115.3.2 designed: the descriptor which specifies that the product is at design level.

4.2.115.3.3 disposed: the descriptor which specifies that the product is at the disposal stage.

4.2.115.3.4 planned: the descriptor which specifies that the product is at the planning stage.

4.2.115.3.5 real: the descriptor which specifies that the product is a physically realised thing.

4.2.116 Product_structure_definition

A Product_structure_definition is a type of Definition (see 4.2.30) and specifies the high level concept for all the definitions (see 3.8.43) which are attributable to product structure (see 3.8.125).

The data associated with a Product_structure_definition are the following:

- usage_context.

The usage_context attribute specifies the context for the use of the product structure information.

4.2.117 Property_BSU

A Property_BSU entity is the means for the identification of a property in an ISO 13584 parts library.

The data associated with a Property_BSU are the following.

- code;
- name_scope;
- version.

4.2.117.1 code

The code specifies the code assigned to this property by its supplier.

4.2.117.2 name_scope

The name_scope is the reference to the class at which or below which the property element is available for reference by the described_by attribute.

4.2.117.3 version

The version specifies the variant of the property.

4.2.118 Property_value

A Property_value provides a binding of a value to a property defined in a parts library conforming to ISO 13584-42:—¹⁾.

The data associated with a Property_value are the following.

- property_BSU;
- property_value

¹⁾ To be published.

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4.2.118.1 property_BSU

The property_BSU specifies the identification of a property in a parts library conforming to ISO 13584-42:—¹⁾.

4.2.118.2 property_vaue

The property_value specifies the quantitative or qualitative measure of the property.

4.2.119 RAM_characteristic

A RAM_characteristic specifies the concept for collecting all the reliability, availability and maintainability characteristics (see 3.8.132) which are attributable to the RAM characteristics of a mechanical product.

The data associated with the RAM_characteristic are the following:

- availability_data;
- defined_for;
- maintainability_data;
- reliability_data.

4.2.119.1 availability_data

The availability_data attribute collects all the availability-related data via referencing of the Availability (see 4.2.7) application object.

4.2.119.2 defined_for

The defined_for attribute specifies the mechanical product for which the RAM characteristics are defined.

4.2.119.3 maintainability_data

The maintainability_data attribute collects all the maintainability-related data via referencing of the Maintainability (see 4.2.93) application object.

4.2.119.4 reliability_data

The reliability_data attribute specifies all the reliability-related data via referencing of the Reliability (see 4.2.165) application object.

4.2.120 Ratio

A Ratio is a type of Measure_with_unit (see 4.2.104) where the physical quantity is a ratio as defined in ISO 31 (clause 2).

The data associated with a Ratio are the following:

- ratio_unit.

The ratio_unit attribute specifies all the units in which the ratio of the two physical quantities, that are of the same kind, is measured.

4.2.121 Real_value

A Real_value is a holder for a value of type real, as defined in Clause 8.1.2 of ISO 10303-11:1994..

NOTE - A Real_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

¹⁾ To be published.

The data associated with a Real_value are the following.

- the_value

The the_value specifies the numeric quantity of the Real_value.

4.2.122 Reliability

A Reliability specifies the data which are attributable to reliability performance of a mechanical product.

The data associated with a Reliability are the following:

- failure_rate;
- mean_time_between_failure;
- mean_time_to_failure;
- reliability.

4.2.122.1 failure_rate

The failure_rate attribute specifies the reliability performance of a mechanical product in terms of its mean failure rate (see 3.7).

4.2.122.2 mean_time_between_failure

The mean_time_between_failure attribute specifies the reliability performance of a mechanical product in terms of its mean time between failures.

4.2.122.3 mean_time_to_failure

The mean_time_to_failure attribute specifies the reliability performance of a mechanical product in terms of its mean time to failures.

4.2.122.4 reliability

The reliability attribute specifies the reliability of a mechanical product.

4.2.123 Rotational_speed

A Rotational_speed is a type of Measure_with_unit (4.2.104) where the physical quantity is rotational speed.

The data associated with a Rotational_speed are the following:

- rotational_speed_unit.

The rotational_speed_unit attribute specifies all the units for the rotational speed.

4.2.124 Ship

A Ship is a type of Item (see 4.2.74) that specifies the ship concerned. All data defining the product are somehow to be related to a ship, which might exist in any life cycle stage.

The data associated with a Ship are the following:

- placements;
- units.

4.2.124.1 placements

The placements attribute specifies the redefine of the inherited attribute placement.

4.2.124.2 units

The units attribute specifies a reference to a set of pre-defined unit for all measures that may appear in the ship model. There may be more than one units for a Ship.

4.2.125 Ship_space

A Ship_space specifies the ship spaces/locations, within which the mechanical product may be or is positioned.

The data associated with a Ship_space are the following:

- ship_space_name.

The ship_space_name attribute specifies the name of the ship space.

The value of the ship_space_name shall be one of the following:

- engine_room;
- deck;
- machinery_room;
- user_defined_ship_space.

4.2.125.1 engine_room: The descriptor which specifies that the mechanical product is placed in the engine room.

4.2.125.2 deck: The descriptor which specifies that the mechanical product is placed on the deck.

4.2.125.3 machinery room: The descriptor which specifies that the mechanical product is placed in the machinery room.

4.2.125.4 user_defined_ship_space: The descriptor, set by the user, which specifies the ship compartment within which the mechanical product is located if different from the other options.

4.2.126 Solid_material_property

A Solid_material_property is a type of Material_property (see 4.2.103) and specifies the high level concept for all the properties which are attributable to a solid material.

The data associated with a Solid_material_property are the following:

- corrosion_fatigue_strength;
- defined_for;
- density;
- element_contents;
- elongation;
- fatigue_strength;
- hardness_number;
- poisson_ratio;
- shear_modulus;
- stress_of_fracture;
- thermal_expansion_ratio;
- ultimate_tensile_stress;
- yield_point;
- youngs_modulus.

4.2.126.1 corrosion_fatigue_strength

The corrosion_fatigue_strength attribute specifies the material fatigue strength under corrosion conditions.

4.2.126.2 defined_for

The defined_for attribute specifies a solid material for which the properties are defined.

4.2.126.3 density

The density attribute specifies the density of the material.

4.2.126.4 element_contents

The element_contents attribute specifies details of compositional elements of a solid material by referencing an Element_content (see 4.2.47) application object.

4.2.126.5 elongation

The elongation attribute specifies the stretching characteristic of a solid material under tensile stress.

4.2.126.6 fatigue_strength

The fatigue_strength attribute specifies the fatigue strength of a material which is the highest stress that a material can be expected to withstand for an infinite number of cycles without failure.

4.2.126.7 hardness_number

The hardness_number attribute specifies a number indicating the relative hardness of a substance as determined by various hardness tests.

4.2.126.8 poisson_ratio

The poisson_ratio attribute specifies the poisson ratio of the material which is the negative ratio between longitudinal and transversal strains.

4.2.126.9 shear_modulus

The shear_modulus attribute specifies the material shear modulus which indicates the strength factor for the material under shear stress. The shear_modulus is a DERIVED attribute from youngs_modulus and poisson_ratio.

4.2.126.10 stress_of_fracture

The stress_of_fracture attribute specifies the stress level beyond which the material will undergo fraction and loose coherence.

4.2.126.11 thermal_expansion_ratio

The thermal_expansion_ratio attribute specifies the linear expansion caused by a unit change of material temperature level.

4.2.126.12 ultimate_tensile_stress

The ultimate_tensile_stress attribute specifies the material's ultimate tensile stress which is the highest tensile stress that a material can withstand before it fractures or fails.

4.2.126.13 yield_point

The yield_point attribute specifies the yield point of the material. The yield point defines the limit to elastic deformation beyond which the material undergoes plastic deformation.

4.2.126.14 youngs_modulus

The youngs_modulus attribute specifies the material youngs modulus of elasticity which is the ratio between stress and strain in the elastic region (Hook's law).

4.2.127 Solid_model

A Solid_model is a complete representation of the nominal shape of a product such that all points in the interior are connected. Any point can be classified as being inside, outside or on the boundary of a solid. It is used as defined in ISO 10303-41.

4.2.128 Spare_part

A Spare_part is a type of Task_resource (see 4.2.197) which specifies the concept for collecting information on spare parts needed for a task.

The data associated with a Spare_part are the following:

- spare_parts_list.

The spare_parts_list attribute provides a list of all the required spare parts.

4.2.129 Speed

A Speed is a type of Measure_with_unit (see 4.2.104) where the physical quantity is linear speed.

The data associated with a Speed are the following:

- speed_unit.

The speed_unit attribute specifies all the units in which linear speed is measured.

4.2.130 Stress

A Stress is a type of Measure_with_unit (see 4.2.104) where the physical quantity is the stress within a material.

The data associated with a Stress are the following:

- stress_unit.

The stress_unit attribute specifies all the units in which the physical quantity of stress is measured.

4.2.131 String_value

A String_value is a holder for a value of type string, as defined in Clause 8.1.6 of ISO 10303-11:1994.

NOTE - A String_value entity is needed in the ARM to serve as a member of the value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a String_value are the following.

- the_value

The the_value specifies the text of the String_value.

4.2.132 Structural_connection

A Structural_connection is a type of Mechanical_product_connection (see 4.2.113) which specifies the connection (see 3.8.34) between a mechanical product and a ship structure.

The data associated with a Structural_connection are the following:

- connection_type.

A connection_type attribute specifies the type of the structural connection.

The value of a connection_type shall be one of the following:

- component_mounting;
- equipment_mounting;
- equipment_support;
- insulation_attachment;

- pipe_support;
- user_defined_structural_connection.

4.2.132.1 component_mounting: the descriptor which specifies that the structural connection is of type component mounting.

4.2.132.2 equipment_mounting: the descriptor which specifies that the structural connection is of type equipment mounting.

4.2.132.3 equipment_support: the descriptor which specifies that the structural connection is of type equipment support.

4.2.132.4 insulation_attachment: the descriptor which specifies that the structural connection is of type insulation attachment.

4.2.132.5 pipe_support: the descriptor which specifies that the structural connection is of type pipe support.

4.2.132.6 user_defined_structural_connection: the descriptor, set by the user, which specifies the type of structural connection if different from the other options.

4.2.133 Supplier_BSU

A supplier_BSU is the means for the identification of an information supplier in an ISO 13584 parts library.

The data associated with a Supplier_BSU are the following.

- code

The code specifies the code that identifies the supplier and is assigned in accordance with ISO 13584-42:—¹⁾.

4.2.134 Surface_tension

A Surface_tension is a type of Measure_with_unit (see 4.2.104) where the physical quantity is surface tension of a liquid.

The data associated with a Surface_tension are the following:

- surface_tension_unit.

The surface_tension_unit attribute specifies all the units in which the physical quantity of force per length is measured.

4.2.135 Survey_inspection_task

A Survey_inspection_task is a type of Task (see 4.2.189) and specifies the concept for collecting data which are attributable to a survey/inspection task.

The data associated with a Survey_inspection_task are the following:

- type_of_task.

The type_of_task attribute specifies the type of survey/inspection task in a text format.

¹⁾ To be published.

4.2.136 Task

A Task specifies the high level concept for data representation for all various tasks (see 3.8.155) and activities (3.8.2) which need to be defined.

The data associated with a Task are the following:

- description;
- job_number;
- reason_for_task;
- related_mechanical_products;
- related_tasks;
- standard_definition;
- task_status;
- task_type.

4.2.136.1 description

The description attribute specifies a textual description of the task.

4.2.136.2 job_number

The job_number specifies a unique label for identification of the task.

4.2.136.3 reason_for_task

The reason_for_task attribute specifies the overall objective of the task.

4.2.136.4 related_mechanical_products

The related_mechanical_products attribute specifies the mechanical products which are related to the task.

4.2.136.5 related_tasks

The related_tasks attribute specifies the tasks which are related to this task.

4.2.136.6 standard_definition

The standard_definition attribute specifies a textual standard definition for the task. The standard definition shall be according to this part of ISO 10303.

4.2.136.7 task_status

The task_status attribute specifies the status of a task within its life cycle.

The value of task_status shall be one of the following:

- completed;
- concept;
- executed;
- planned;
- under_execution;
- under_planning.

4.2.136.7.1 completed: the descriptor which specifies that the task has been fully completed without any need for further action.

4.2.136.7.2 concept: the descriptor which specifies that the task is at the concept stage.

4.2.136.7.3 executed: the descriptor which specifies that the task has been executed.

4.2.136.7.4 planned: the descriptor which specifies that the task planning is complete but not executed.

4.2.136.7.5 under_execution: the descriptor which specifies that the task is at the execution stage.

4.2.136.7.6 under_planning: the descriptor which specifies that the task is at the planning stage.

4.2.136.8 task_type

The task_type attribute specifies the type of task at high level.

The value of the task_type shall be one of the following:

- analysis_task;
- design_task;
- inspection_task;
- maintenance_task;
- normal_operation_task;
- survey_task;
- user_defined_task.

4.2.136.8.1 analysis_task: the descriptor which specifies that the task is an analysis task.

4.2.136.8.2 design_task: the descriptor which specifies that the task is a design task.

4.2.136.8.3 Inspection_task: the descriptor which specifies that the task is an inspection task.

4.2.136.8.4 maintenance_task: the descriptor which specifies that the task is a maintenance task.

4.2.136.8.5 normal_operation_task: the descriptor which specifies that the task is a normal operation task.

4.2.136.8.6 survey_task: the descriptor which specifies that the task is a survey task.

4.2.136.8.7 user_defined_task: the descriptor, set by the user, which specifies the type of task if different from the other options.

4.2.136.9 related_mechanical_products

The related_mechanical_products attribute specifies the mechanical products which this task relates to. Each task must have at least one related mechanical product.

4.2.137 Task_approval

A Task_approval is a type of Approval_event (see 4.2.6) and specifies task-related data on approval and authorisation.

4.2.138 Task_configuration

A Task_configuration is a type of Task_definition (see 4.2.192) and specifies all the data relating to the configuration (see 3.8.32) of a task (see 3.8.155)

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The data associated with a Task_configuration are the following:

- task_approval;
- task_authorisation;
- task_location.

4.2.138.1 task_approval

The task_approval specifies information on approval of a task in the form of event and approval data (see 3.8.60).

4.2.138.2 task_authorisation

The task_authorisation specifies information on authorisation of a task in the form of event and approval data (see 3.8.60).

4.2.138.3 task_location

The task_location attribute specifies the place where the task is performed.

The value of task_location shall be one of the following:

- in_shipyard;
- in_supplier_premises;
- on_board_ship;
- user_defined_location.

4.2.138.3.1 in_shipyard: the descriptor which specifies that the task is to be performed at a shipyard.

4.2.138.3.2 in_supplier_premises: the descriptor which specifies that the task is to be performed at the supplier's premises.

4.2.138.3.3 on_board_ship: the descriptor which specifies that the task is to be performed on board ship.

4.2.138.3.4 user_defined_location: the descriptor, set by the user, which specifies the location where the task will be executed if different from the other options.

4.2.139 Task_definition

A Task_definition is the supertype for all kinds of task-related definitions and specifies the high level concept for relating definitions to a task.

The data associated with a Task_definition are the following:

- defined_for;
- version_id.

4.2.139.1 defined_for

The defined_for attribute specifies the tasks for which definitions are provided. There may be more than one defined_for for a Task_definition.

4.2.139.2 version_id

The version_id attribute specifies a simple versioning mechanism for the task definitions.

4.2.140 Task_other_definition

A Task_other_definition is a type of Task_definition (see 4.2.192) which specifies all task-related definitions other than those already specified in Task_configuration (see 4.2.191), Task_schedule (see 4.2.199), Task_procedure (see 4.2.195), Task_resource (see 4.2.197), Task_result (see 4.2.198) and Task_schedule (see 4.2.199),

The data associated with a Task_other_definition are the following:

- task_other_definitions.

The task_other_definitions attribute specifies all the related information in a text format.

4.2.141 Task_other_resource

A Task_other_resource is a type of Task_resource (see 4.2.197) which specifies all resources other than those already specified in Human_resource (see 4.2.72), Spare_part (see 4.2.181) and Tool (see 4.2.207).

The data associated with a Task_other_resource are the following:

- task_other_resources.

The task_other_resources attribute specifies all the related information in a text format.

4.2.142 Task_procedure

A Task_procedure is a type of Task_definition (see 4.2.192) and specifies the procedures by which a task (see 3.8.155) needs to be carried out.

The data associated with a Task_procedure are the following:

- task_procedures.

The task_procedures attribute specifies and references a set of one to many documents which contain a detailed procedure for carrying out the task.

4.2.143 Task_relationship

A Task_relationship specifies the concept for relating two tasks together.

The data associated with a Task_relationship are the following:

- major_aspect_of_relationship;
- related_task;
- this_task.

4.2.143.1 major_aspect_of_relationship

The major_aspect_of_relationship specifies the important aspect of a task's relationship.

The value of major_aspect_of_relationship shall be one of the following:

- concurrent;
- predecessor;
- successor;
- user_defined_relationship.

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4.2.143.1.1 concurrent: the descriptor which specifies that this_task and the related_task should be carried out concurrently.

4.2.143.1.2 predecessor: the descriptor which specifies that this_task should be completed after the related_task is initiated.

4.2.143.1.3 successor: the descriptor which specifies that this_task should be carried out before the related_task.

4.2.143.1.4 user_defined_relationship: the descriptor, set by the user, which specifies the relationship between two tasks if different from the other options.

4.2.143.2 related_task

The related_task attribute specifies the task which is related to this_task.

4.2.143.3 this_task

The this_task attribute specifies a task for which a related_task is specified.

4.2.144 Task_resource

A Task_resource is a type of Task_definition (see 4.2.192) and specifies the high level concept for defining all the resources which are needed to perform a task.

4.2.145 Task_result

A Task_result is a type of Task_definition (see 4.2.192) and specifies the results of a task.

The data associated with a Task_result are the following:

- results_as_report;
- results_in_summary.

4.2.145.1 results_as_report

The results_as_report attribute specifies and references a document which contains full results of a task.

4.2.145.2 results_in_summary

The results_in_summary attribute specifies the summary results of a task in text format.

4.2.146 schedule

A Task_schedule is a type of Task_definition (see 4.2.192) and Time_schedule (see 4.2.205) which specifies the schedule for a task.

4.2.147 Temperature

A Temperature is a type of Measure_with_unit (see 4.2.104) where the physical quantity is temperature as defined in ISO 31 (clause 2).

The data associated with a Temperature are the following:

- temperature_unit.

The temperature_unit attribute specifies all the units in which the temperature is measured.

4.2.148 Text

A Text application object is used to assign a character text in order to describe something. It is used as defined in ISO 10303-41.

4.2.149 Thermal_conductivity

A Thermal_conductivity is a type of Measure_with_unit (see 4.2.104) where the physical quantity is thermal conductivity.

The data associated with a Thermal_conductivity are the following:

- thermal_conductivity_unit.

The thermal_conductivity_unit attribute specifies all the units in which the physical quantity of thermal conductivity is measured.

4.2.150 Time

A Time is a type of Measure_with_unit (see 4.2.104) where the physical quantity is time as defined in ISO 31 (clause 2).

The data associated with a Time are the following:

- time_unit.

The time_unit attribute specifies all the units in which the duration of periods is measured

4.2.151 Time_period

A Time_period specifies a time period in terms of its start and end dates.

The data associated with a Time_period are the following:

- duration;
- end_date;
- start_date.

4.2.151.1 duration

The duration attribute specifies the duration of a time period. It is a DERIVED attribute.

4.2.151.2 end_date

The end_date attribute specifies the end date for the time period.

4.2.151.3 start_date

The start_date attribute specifies the start date for the time period.

4.2.152 Time_schedule

A Time_schedule is a type of Time_period (see 4.2.204) and specifies a schedule on a calendar basis.

4.2.153 Tolerance

A Tolerance is a type of Geometric_definition (see 4.2.67) which provide the high level concept for all the definitions attributable to geometric tolerances of a mechanical product.

The data associated with a Tolerance are the following:

- defined_for;
- manufacturing_tolerances.

4.2.153.1 defined_for

The defined_for attribute specifies a set of one to many mechanical products for which tolerance data are defined.

4.2.153.2 manufacturing_tolerances

The manufacturing_tolerances attribute specifies all the descriptive aspects of product manufacturing tolerances.

4.2.154 Tool

A Tool is a type of Task_resource (see 4.2.197) which specifies the concept for collecting information on tools needed to carry out a task.

The data associated with a Tool are the following:

- tools_list.

The tools_list attribute specifies a list of all the required tools.

4.2.155 Torque

A Torque is a type of Measure_with_unit (see 4.2.104) where the physical quantity is Torque.

The data associated with a Torque are the following:

- torque_unit.

The torque_unit attribute specifies all the units for torque.

4.2.156 Value

A Value is a quantitative or qualitative measurement.

NOTE - A Value entity is needed in the ARM to serve as a member of the property_value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a Value are the following.

- the_value

The the_value specifies the value, type and unit of the property of a mechanical product class.

4.2.157 Value_list

A Value_list is a container for one or more Values (see 4.2.155).

NOTE - A Value_list entity is needed in the ARM to serve as a member of the property_value_select SELECT type, since ISO 10303-11:1994 does not allow simple types to be members of SELECT types.

The data associated with a Value_list are the following.

- values

The values specifies a Value. There may be more than one values for a Value_list.

4.2.158 Vector

A Vector defines a vector in terms of the direction and the magnitude of the vector. It is used as defined in ISO 10303-42.

4.2.159 Viscosity

A Viscosity is a type of Measure_with_unit (see 4.2.104) where the physical quantity is kinematic viscosity of the fluid.

The data associated with a Viscosity are the following:

- viscosity_unit.

The viscosity_unit attribute specifies all the units in which the physical quantity of area per time is measured.

4.3 Application Assertions

This subclause specifies the application assertions for the ship Mechanical Systems application protocol. Application assertions specify the relationships between application objects, the cardinality of relationships, and the rules required for the integrity and validity of the application objects and UoFs. The application assertions and their definitions are given below.

5 Application interpreted model

5.1 Mapping Table

This clause contains the mapping table that shows how each UoF and application object of this part of ISO 10303 (see clause 4) maps to one or more AIM constructs (see Annex A).

To be completed at a later date.

5.2 AIM EXPRESS short listing

This clause specifies the EXPRESS schema that uses elements from the integrated resources and the AICs and contains types, entity specialisations, rules and functions that are specific to this part of ISO 10303. This clause also specifies modification to the textual material for constructs that are imported from the integrated resources and the AICs. The definitions and EXPRESS provided in the integrated resources for constructs used in the AIM may include select list items and subtypes which are not imported into the AIM. Requirements stated in the integrated resources which refer to such items and subtypes apply exclusively to those items which are imported into the AIM.

To be completed at a later date.

6. Conformance requirements

Conformance to this part of ISO 10303 includes satisfying the requirements stated in this part, the requirements of the implementation methods supported, and the relevant requirements of the normative references.

An implementation shall support at least one of the following implementation methods:

- ISO 10303-21
- ISO 10303-22

Requirements with respect to implementation methods are specified in annex C.

The Protocol Information Conformance Statement (PICS) proforma lists the options or the combinations of options that may be included in the implementation. The PICS proforma is provided in annex D.

NOTE 1 - ISO 10303-326: - ¹⁾ defines the abstract test suite to be used in the assessment of conformance.

ISO 10303-32: - ¹⁾ describes the conformance assessment process.

Conformance to a particular class requires that all AIM elements defined as part of that class be supported. Table (*to be specified later*) defines the classes to which each AIM element belongs. The conformance classes are characterised as follows:

This part of ISO 10303 specifies a number of conformance classes that may be supported by an implementation. The conformance classes are:

- Class 1, the shape representation of the mechanical systems and their principal equipment together with their product structure and connectivity information. This class excludes all the functional and design characteristics of the systems/equipment.
- Class 2, the general characteristics and specifications of the mechanical systems and their principal equipments.
- Class 3, functional design of mechanical systems primarily in the form of parametric definitions. This class contains only functional information, but no detailed geometric and other physical and spatial details.
- Class 4, operational characteristics of mechanical equipment. This class contains only operational information (as normally measured on-board ship), but no geometric, physical, spatial and design characteristics details.
- Class 5, task and activity information as carried out in relation to mechanical equipments. This class excludes any functional, physical, spatial or design information and will include information on activities carried out in relation to mechanical products.

Table 1 defines the division of conformance classes and the related units of functionality within a conformance class

Table 1 - Conformance Classes

Unit of functionality	Conformance Class				
	1	2	3	4	5
configuration_definitions	X	X	X	X	X
cranes	X	X	X	X	X
diesel_engines	X	X	X	X	X
external_references	X	X	X	X	X
gas_material_properties			X	X	
liftingEquipments	X	X	X	X	X
liquid_material_properties			X	X	
local_co_ordinate_systems	X				
machineries	X	X	X	X	X
maintenance_tasks					X
measure_with_units	X	X	X	X	X
mechanical_machineries	X	X	X	X	X
mechanical_product_anomalies				X	X
mechanical_product_components	X			X	X
mechanical_product_connections	X	X			
mechanical_product_definitions	X	X	X	X	X
mechanical_productEquipments	X	X	X	X	X
mechanical_product_general_characteristics	X	X	X	X	X
mechanical_product_representations	X				
mechanical_product_structures	X			X	X
mechanical_product_systems	X	X	X	X	X
mechanical_products	X	X	X	X	X
otherEquipments	X	X	X	X	X
other_tasks					X
part41_resources	X	X	X	X	X
part42_resources	X	X	X	X	X
RAM_characteristics				X	X
reciprocating_machineries	X	X	X	X	X
screw_propellers	X	X	X	X	X
ships	X	X	X	X	X
solid-material_properties		X	X	X	X
task_definitions					X
tasks					X
time_and_events	X	X	X	X	X

Annex A
(normative)

AIM EXPRESS expanded listing

The following EXPRESS is the expanded form of the short form schema given in 5.2. In the event of any discrepancy between the short form and this expanded listing, the expanded listing shall be used.

To be completed at a later date

Annex B
(normative)

AIM short names

Table B.1 provides the short names of entities specified in the AIM of this part of ISO 10303. Requirements on the use of the short names are found in the implementation methods included in ISO 10303.

Table B.1 - Short names of entities

Entity names	Short names

To be completed at a later date.

Annex C
(normative)

Implementation method - specific requirements

The implementation method defines what types of exchange behaviour are required with respect to this part of ISO 10303. Conformance to this part of ISO 10303 shall be realised in an exchange structure. The file format shall be encoded according to the syntax and EXPRESS language mapping defined in ISO 10303-21 and the AIM defined in annex A of this part of ISO 10303. The header of the exchange structure shall identify the use of this part of ISO 10303 by the schema name 'ship_mechanical_systems'.

To be completed at a later date

Annex D

(normative)

Protocol Implementation Conformance Statement (PICS) proforma

The PICS proforma is supplied for completion by the person or organisation (the client) requesting conformance testing. Its purpose is to ascertain the scope of claimed conformance to a particular application protocol by an implementation under test (IUT) using a defined implementation method. Through the completion of this form, the PICS Proforma becomes a PICS.

The information contained in the PICS is used to configure an appropriate executable test suite for use by the client.

Ten conformance classes are identified in this part of ISO 10303. A conforming implementation shall support at least one conformance class. Each class specifies a subset of ISO 10303-226 AIM constructs. These classes are detailed in clause 6 of ISO 10303-226.

Questions:

1. Please provide an identifier for the product or system for which conformance is claimed:

Product name and current version number: _____

2. Please indicate the implementation method chosen:

- ISO 10303-21 Exchange Structure - - preprocessor

Preprocessor name and current version number: _____

- ISO 10303-21 Exchange Structure - - postprocessor

Postprocessor name and current version number: _____

3. Please indicate the classes for which conformance is claimed:

- Class 1: _____

- Class 2: _____

- Class 3: _____

To be completed at a later date

Annex E
(normative)

Information object registration

E.1 Document identification

In order to provide for unambiguous identification of an information object in an open system, the object identifier:

{ iso standard 10303 part(226) version(-1) }

is assigned to this part of ISO 10303. The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.

E.2 Schema identification

In order to provide for unambiguous identification of the schema specifications given in this application protocol in an open information system, object identifiers are assigned as follows:

To be completed at a later date

Annex F
(informative)

Application activity model

Annex is not included in this version of the document.

Annex G
(informative)

Application reference model

This annex provides the application reference model (ARM) for this part of ISO 10303. The application reference model is a graphical representation of the structure and constraints of the application objects specified in clause 4. The application reference model is independent from any implementation method.

The graphical form of the application reference model is presented in EXPRESS-G. Figures G.1 to G.46 give the ARM for this part of ISO 10303.

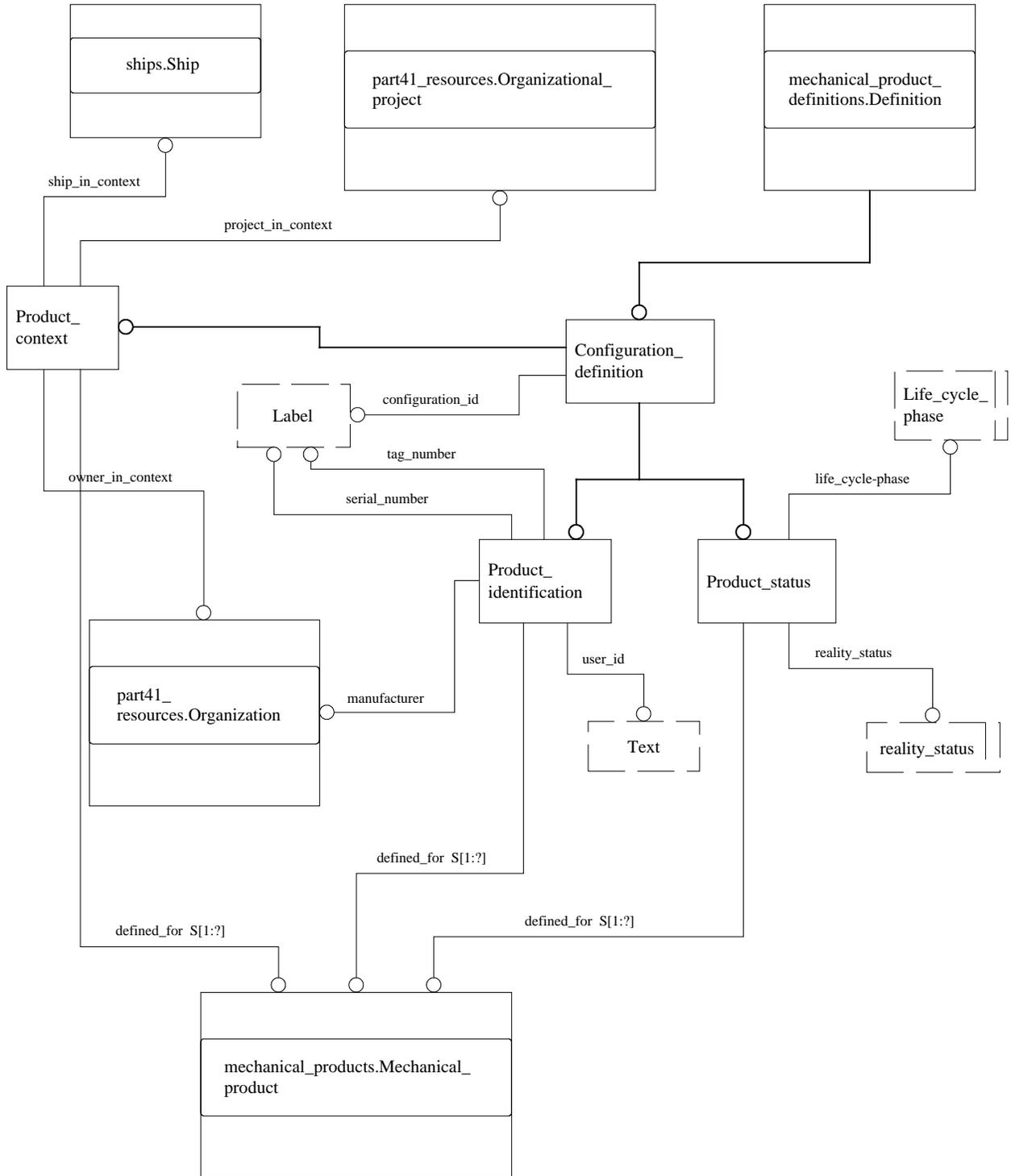


Figure G.1 - Graphical notation of the major aspects of the configuration_definitions UoF schema (figure 1 of 1)

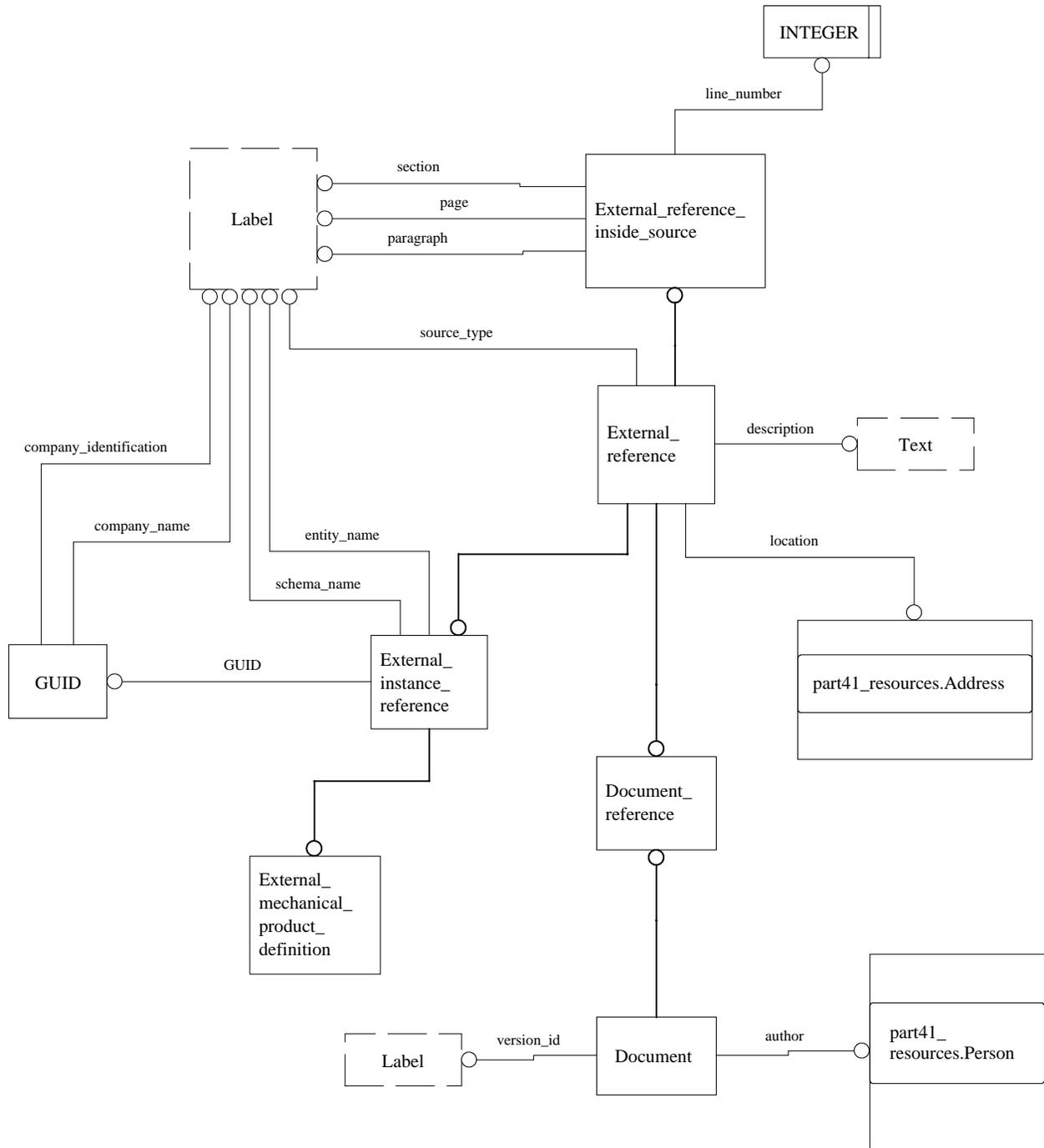


Figure G.2 - Graphical notation of the major aspects of the external_references UoF schema (figure 1 of 1)

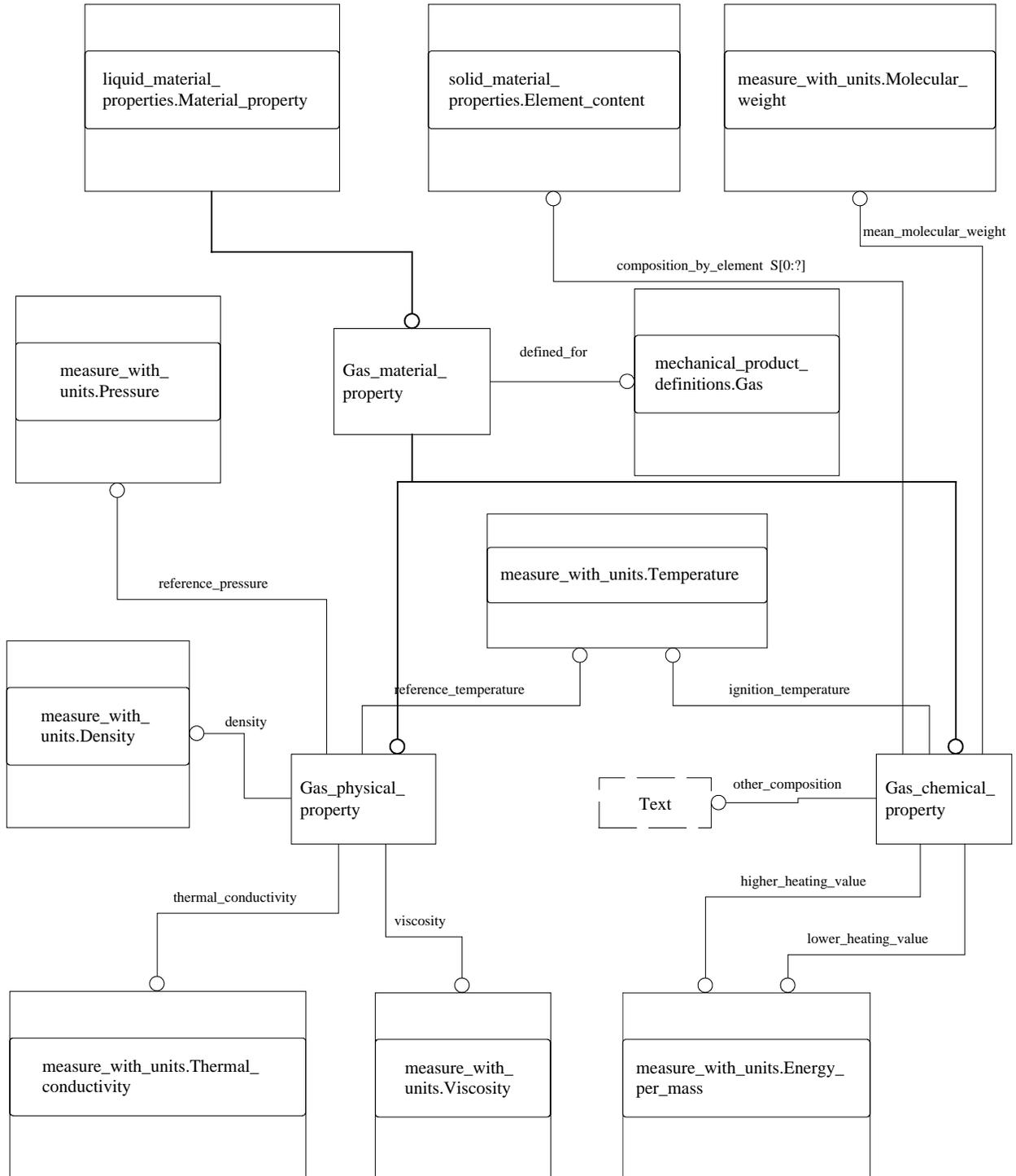


Figure G.3 - Graphical notation of the major aspects of the `gas_material_properties` UoF schema (figure 1 of 1)

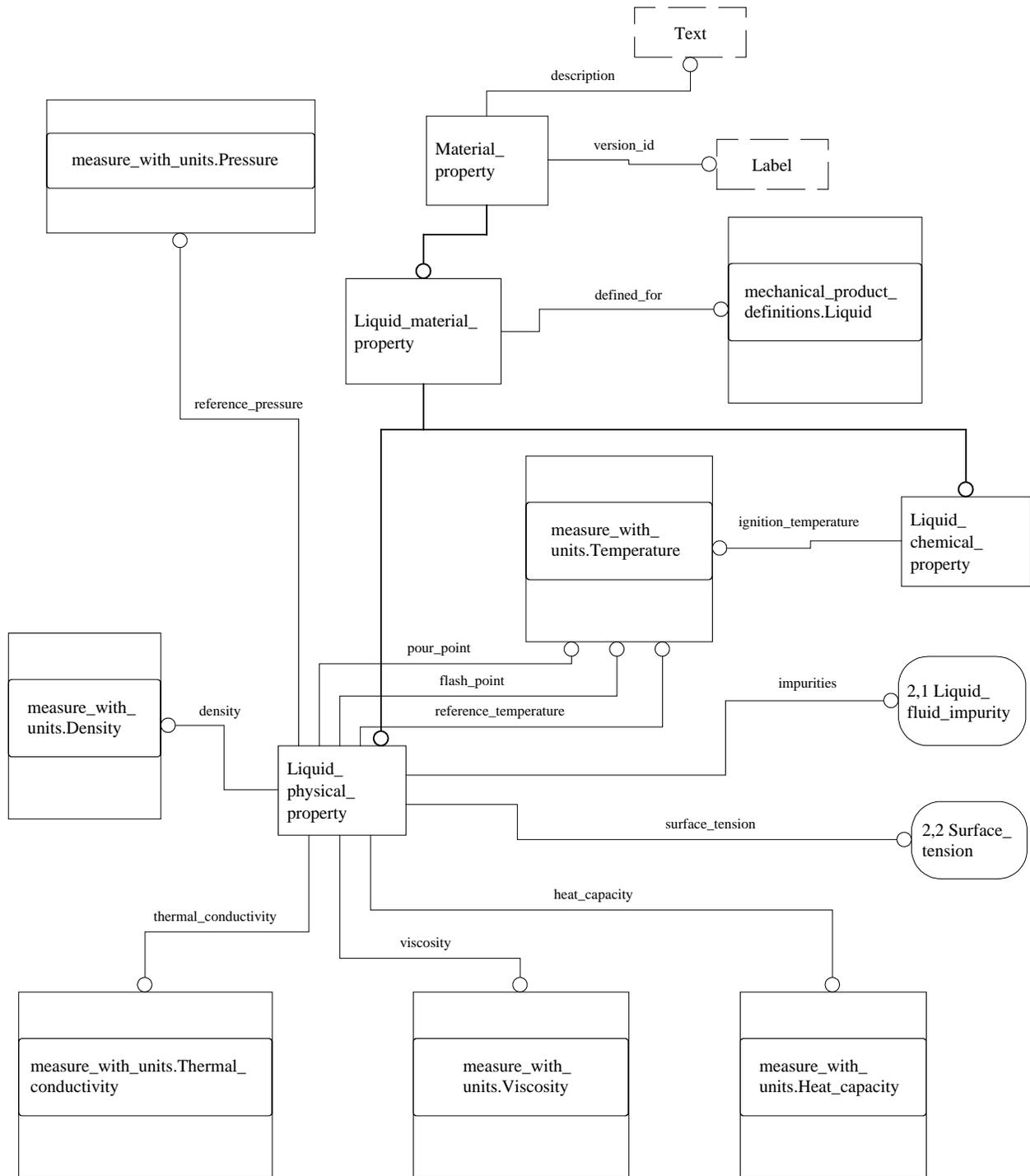


Figure G.4 - Graphical notation of the major aspects of the liquid_material_properties UoF schema (figure 1 of 2)

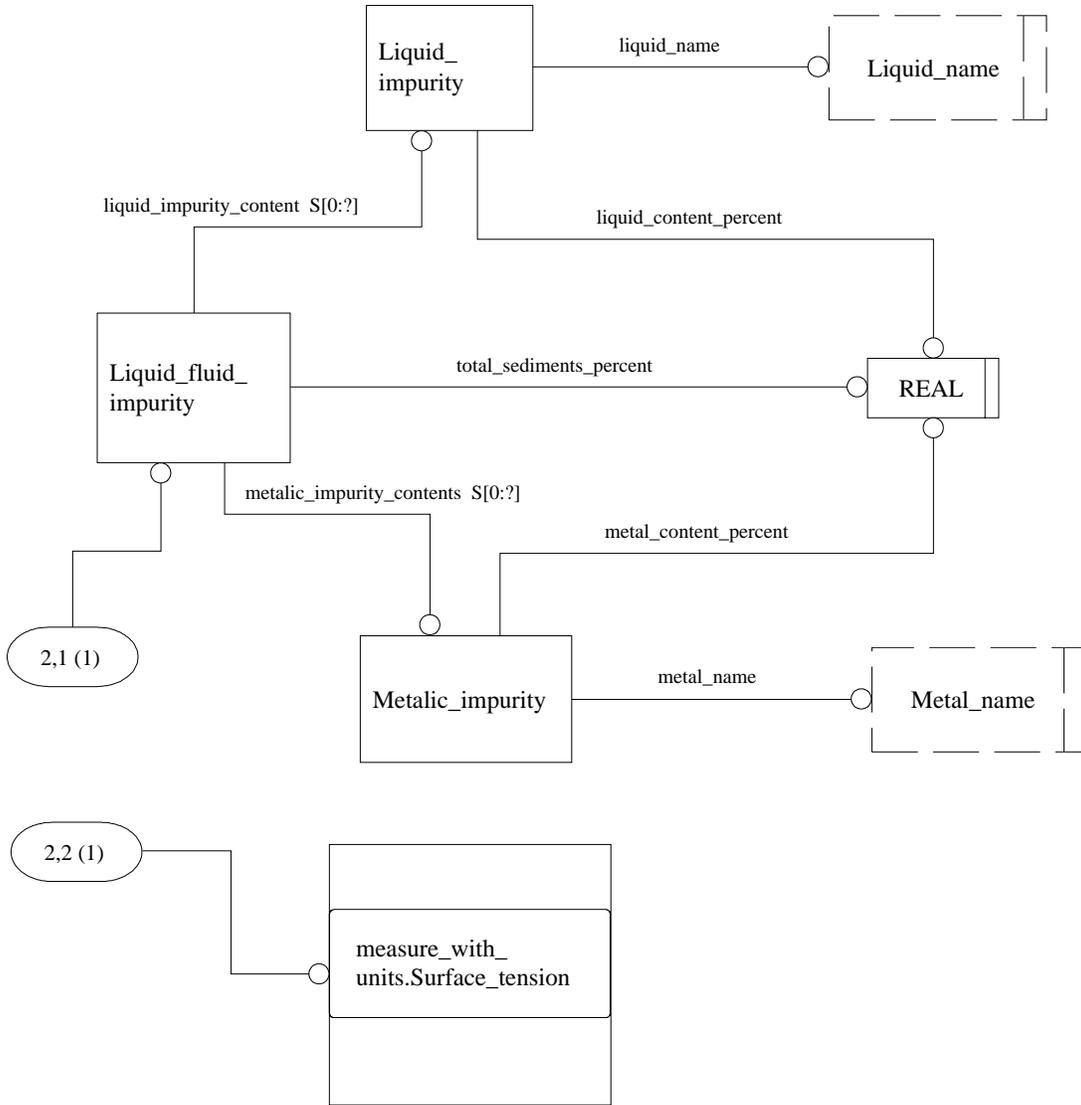


Figure G.5 - Graphical notation of the major aspects of the liquid_material_properties UoF schema (figure 2 of 2)

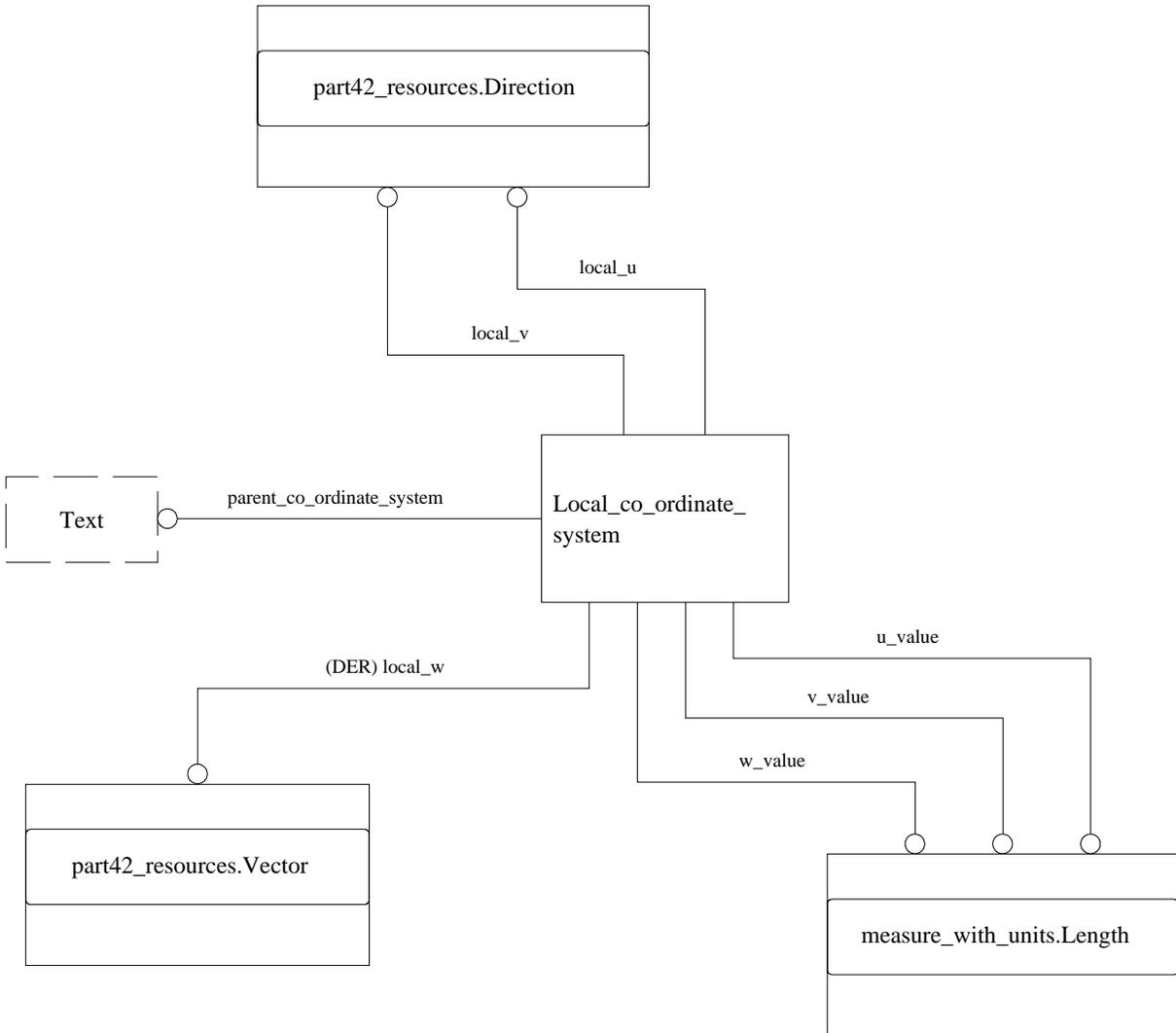


Figure G.6 - Graphical notation of the major aspects of the local_co_ordinate_systems UoF schema (figure 1 of 1)

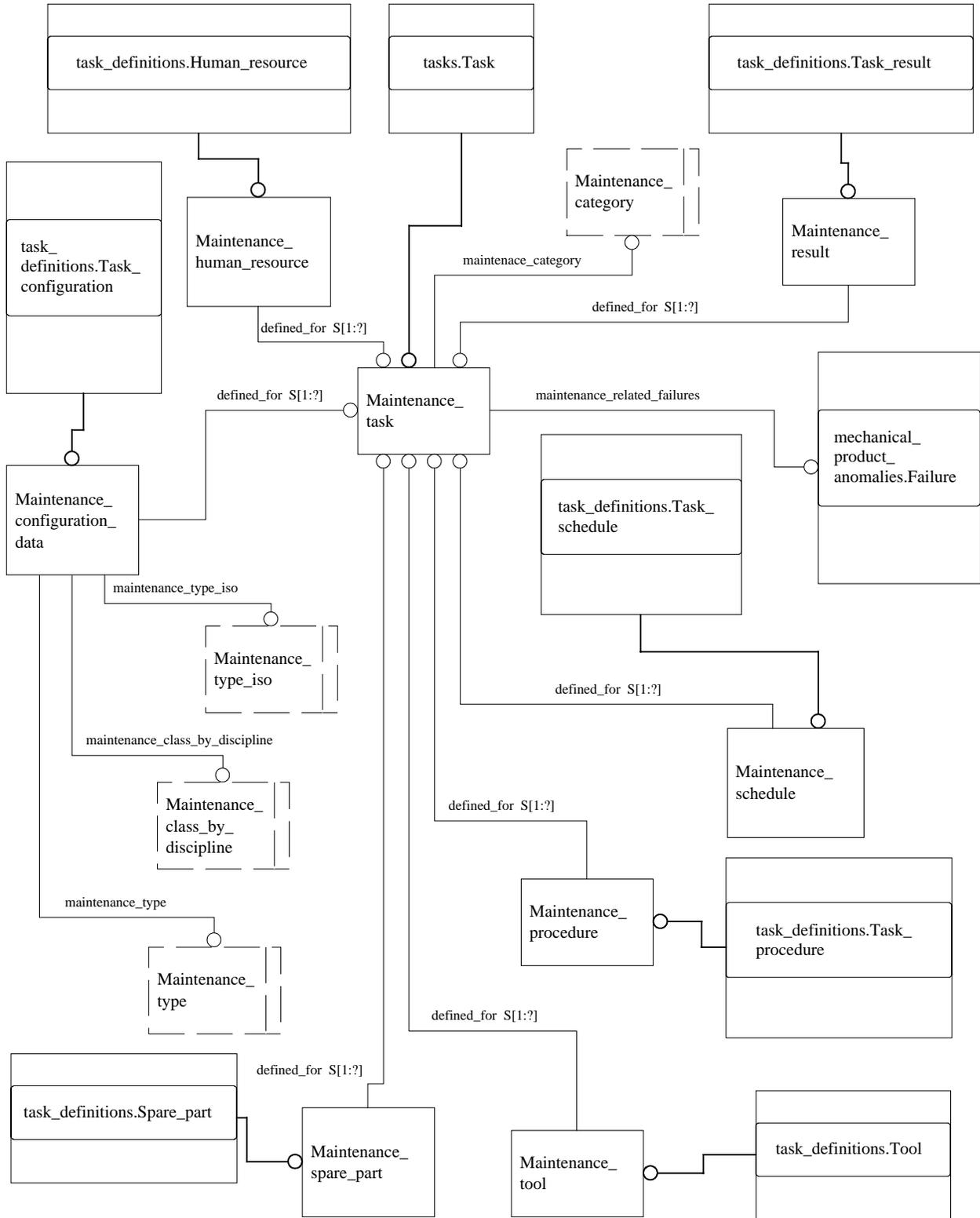


Figure G.7 - Graphical notation of the major aspects of the maintenance_tasks UoF schema (figure 1 of 1)

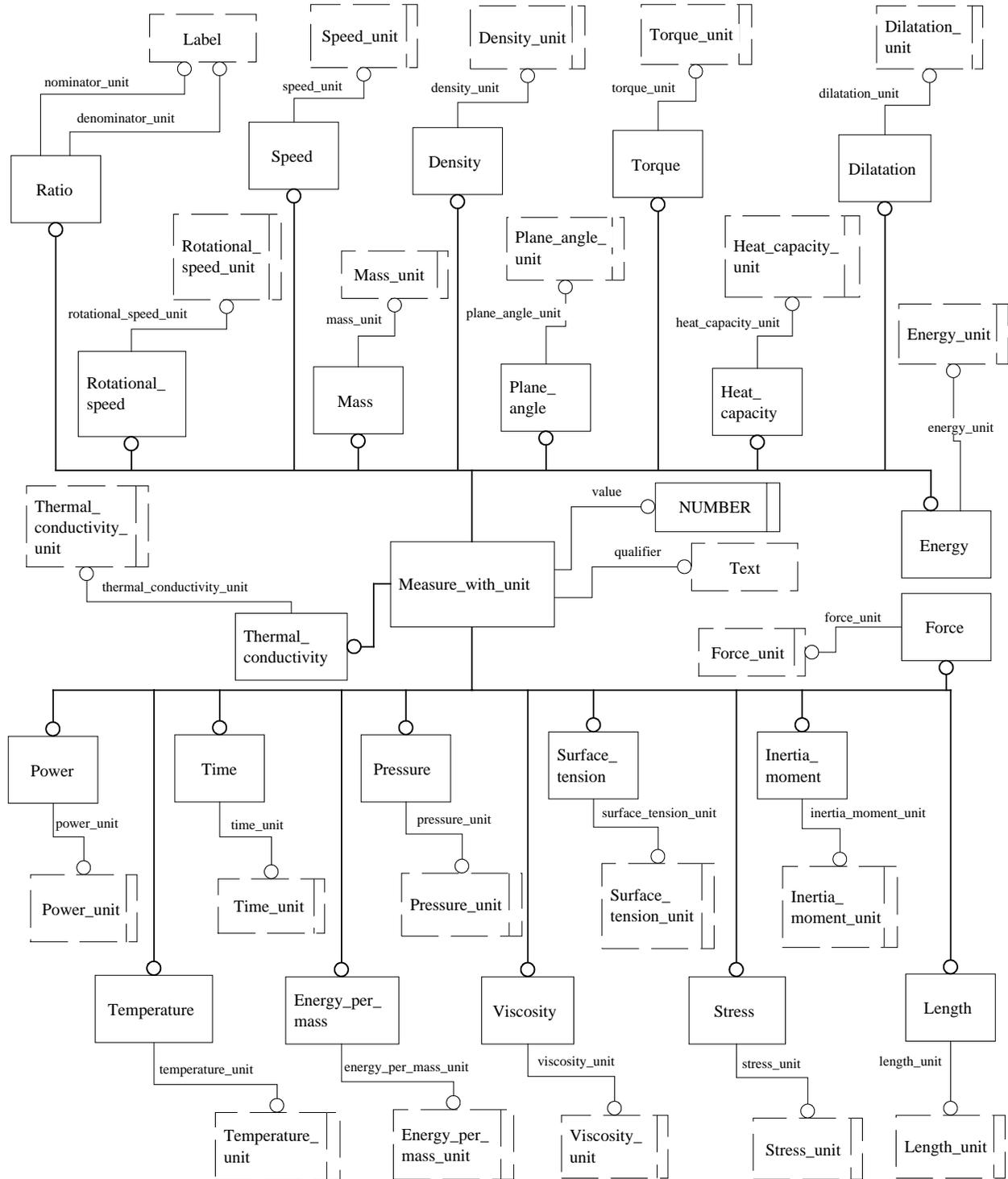


Figure G.8 - Graphical notation of the major aspects of the measure_with_units UoF schema (figure 1 of 1)

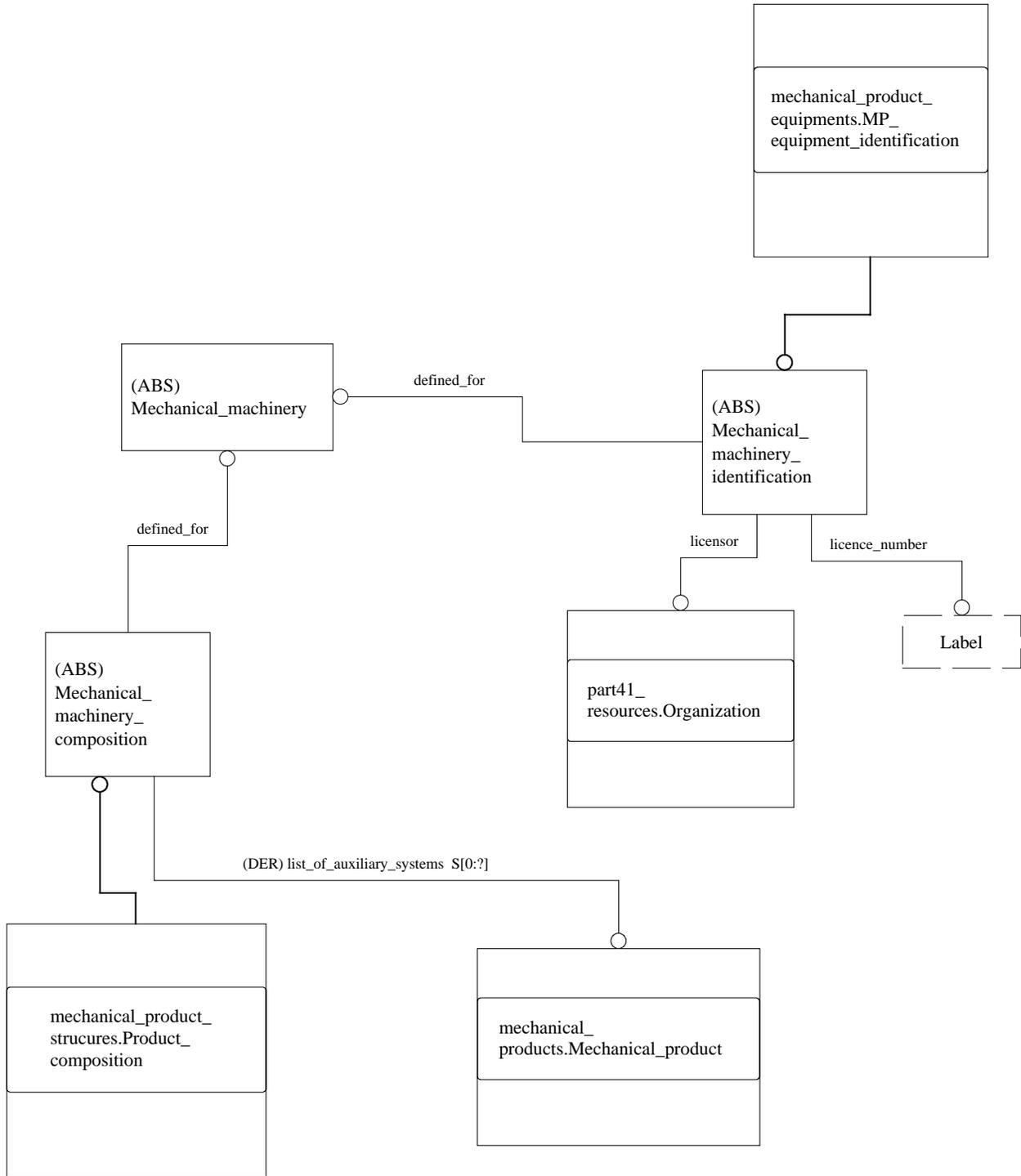


Figure G.9 - Graphical notation of the major aspects of the mechanical_machineries UoF schema (figure 1 of 1)

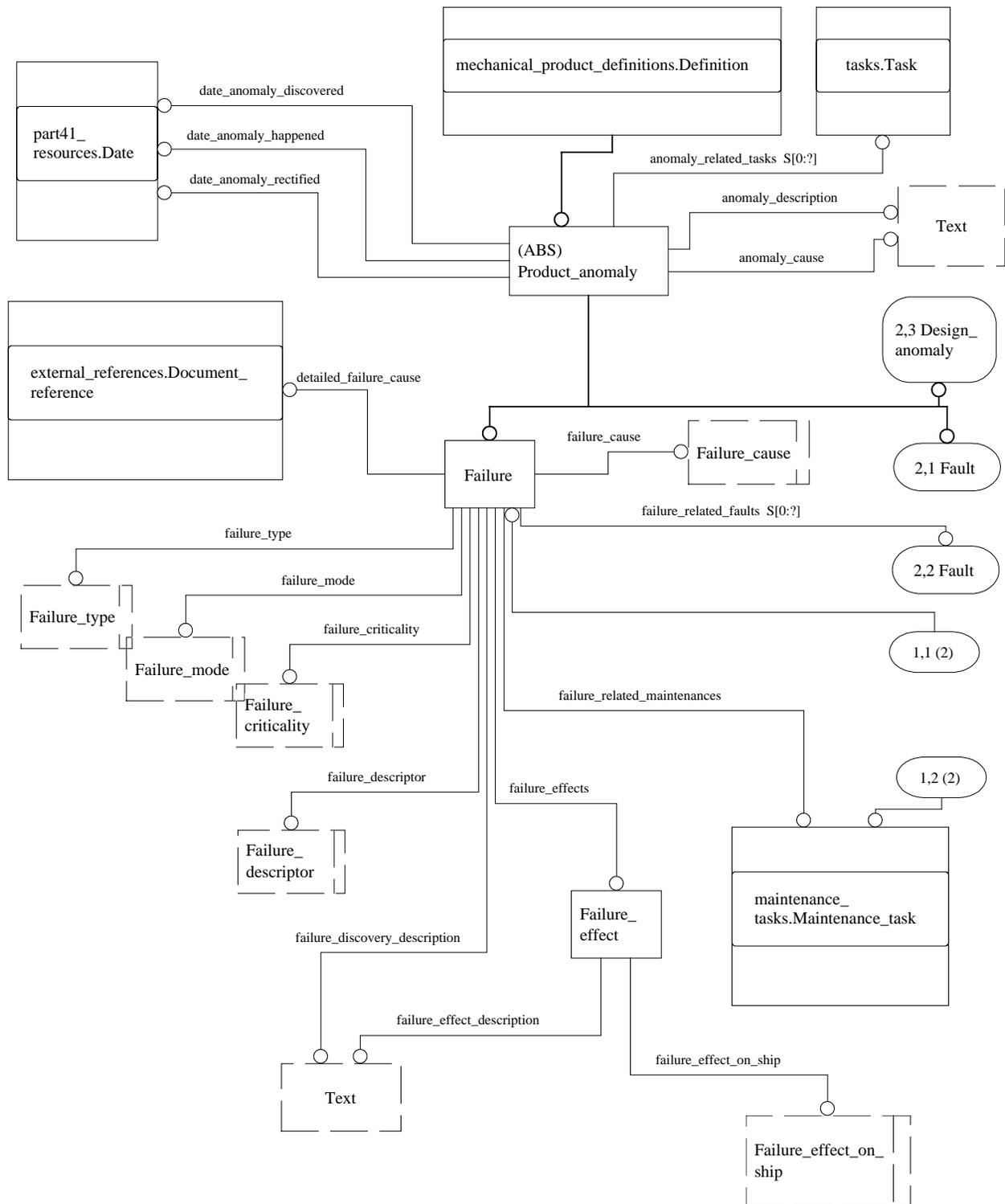


Figure G.10 - Graphical notation of the major aspects of the mechanical_product_anomalies UoF schema (figure 1 of 2)

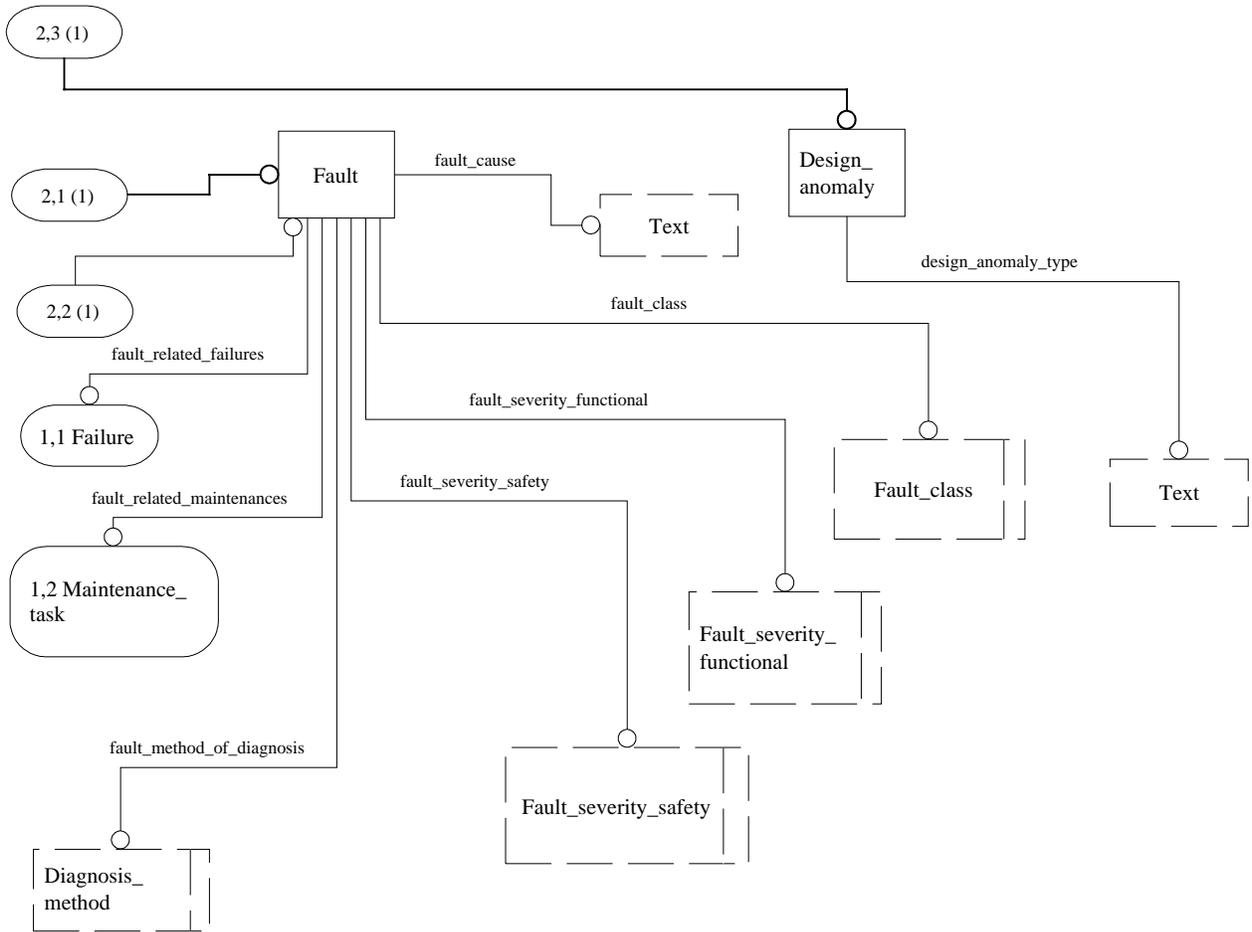


Figure G.11 - Graphical notation of the major aspects of the mechanical_product_anomalies UoF schema (figure 2 of 2)

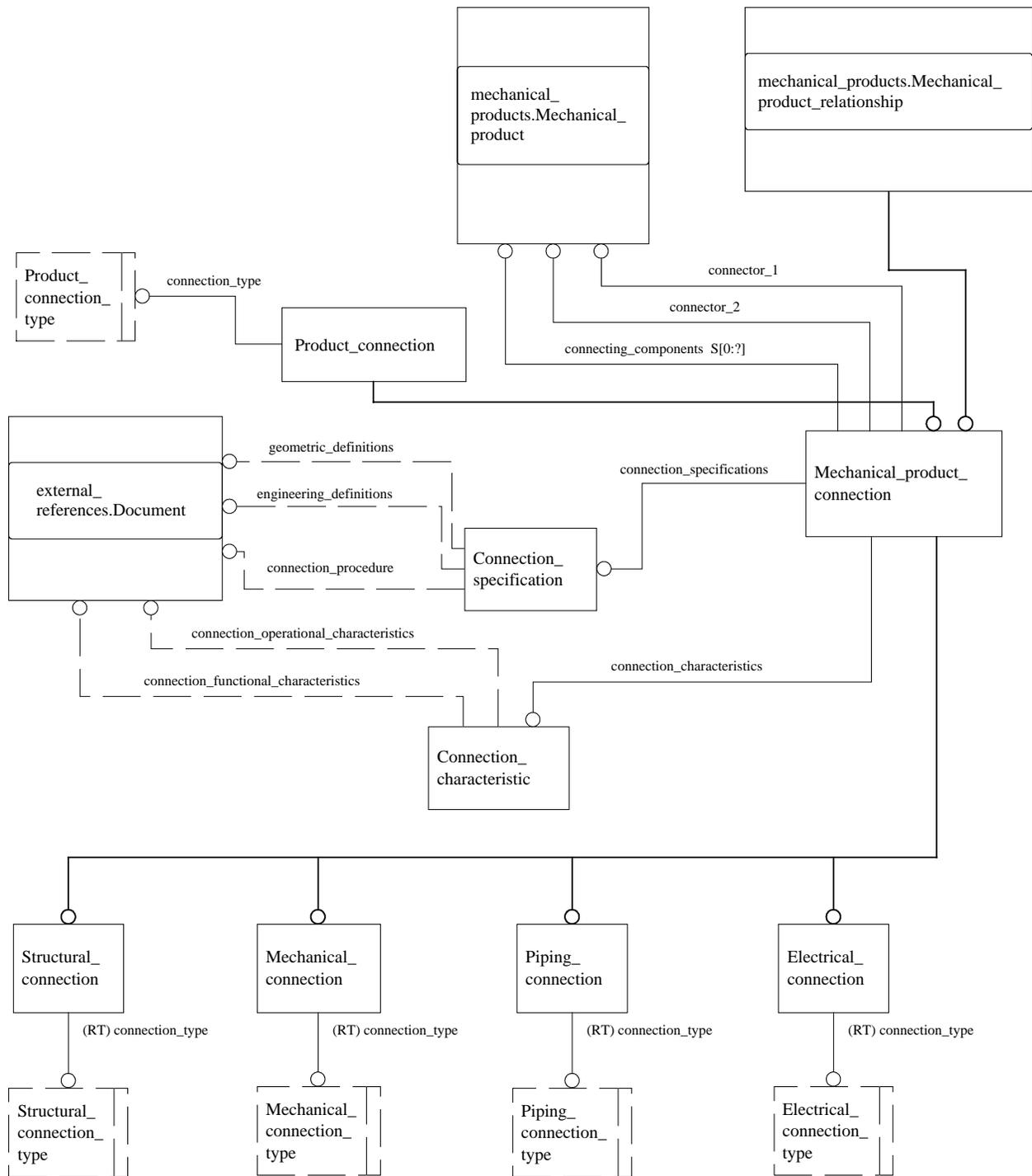


Figure G.12 - Graphical notation of the major aspects of the mechanical_product_connections UoF schema (figure 1 of 1)

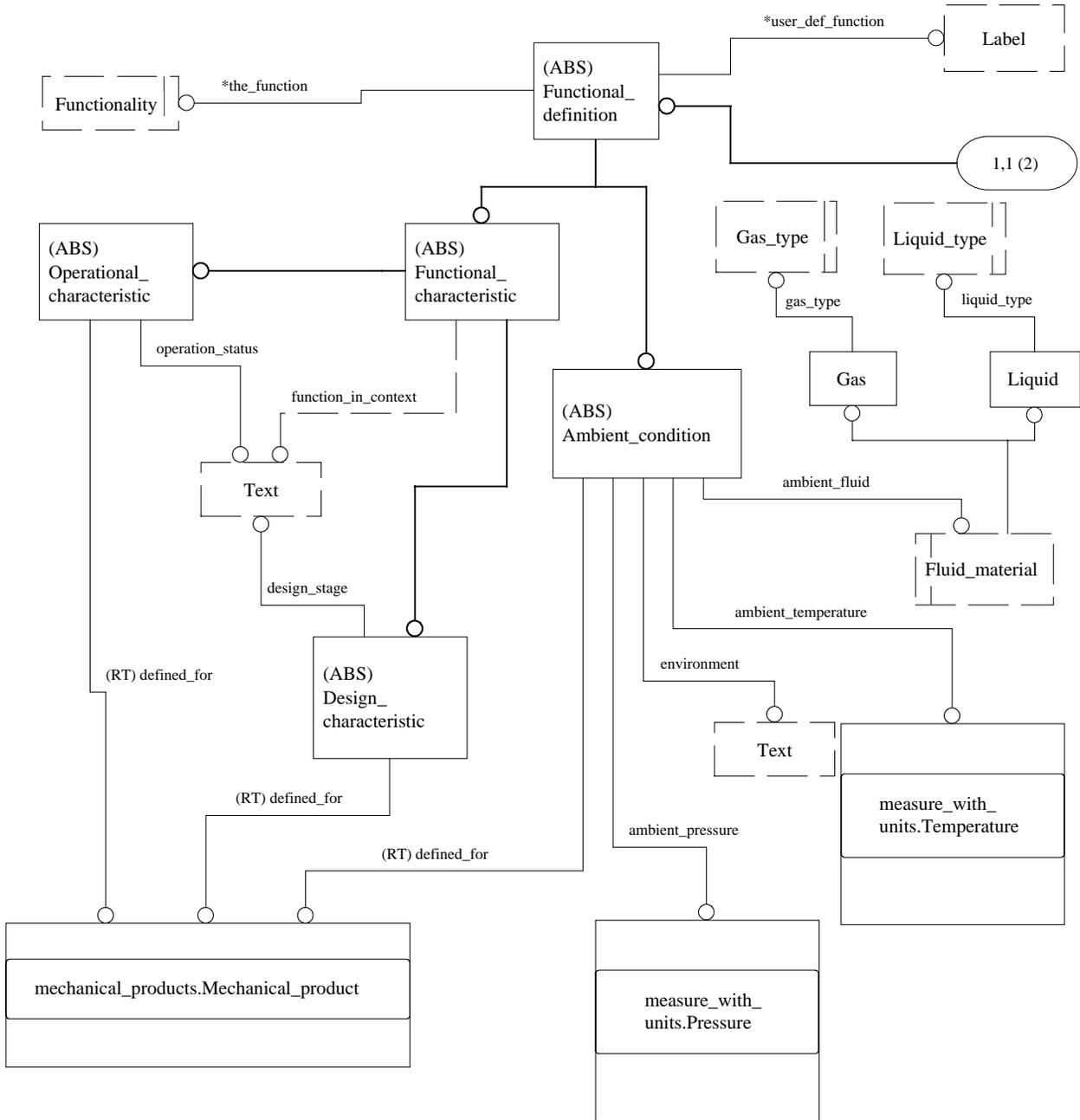


Figure G.13 - Graphical notation of the major aspects of the mechanical_product_definitions UoF schema (figure 1 of 3)

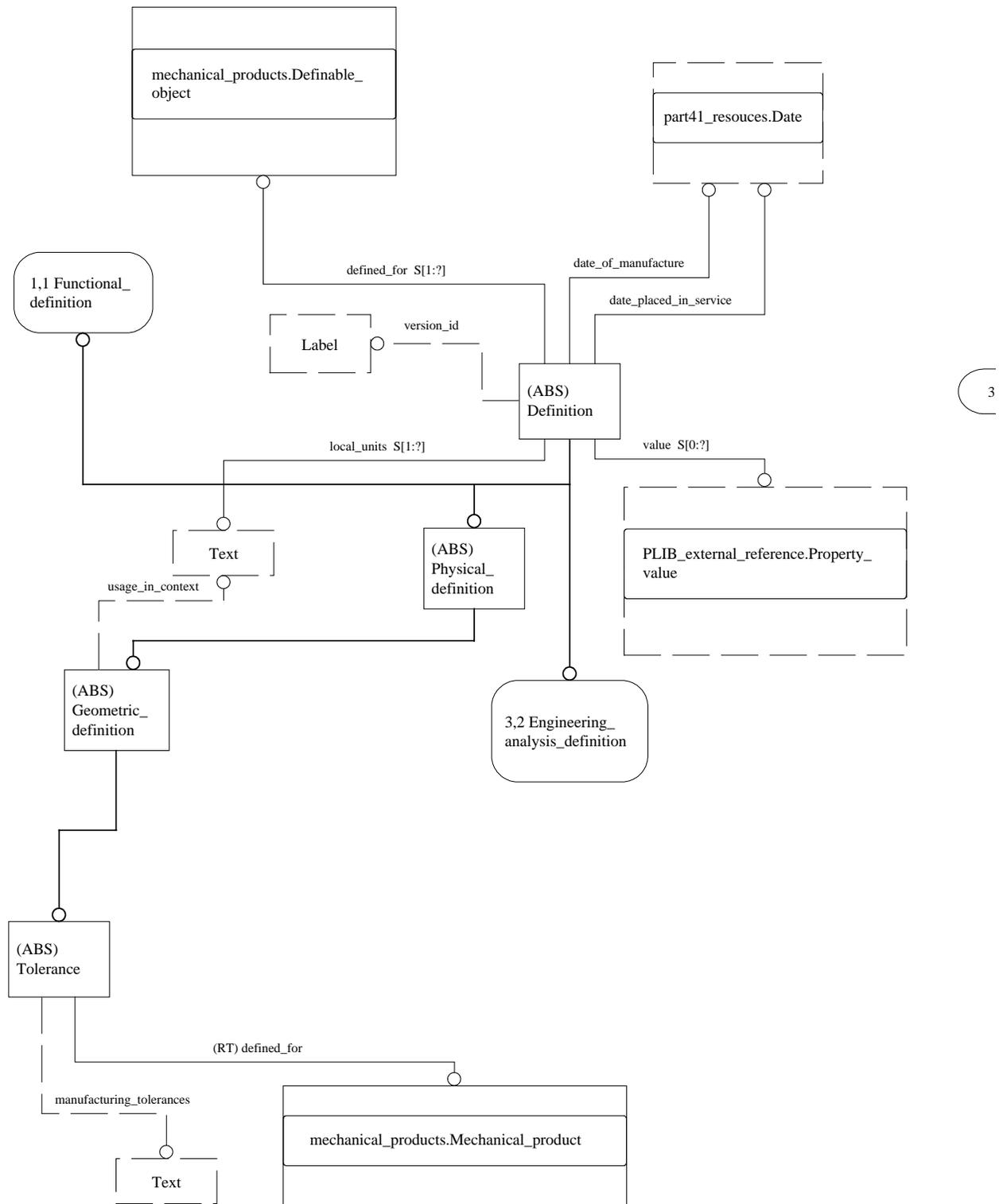


Figure G.14 - Graphical notation of the major aspects of the mechanical_product_definitions UoF schema (figure 2 of 3)

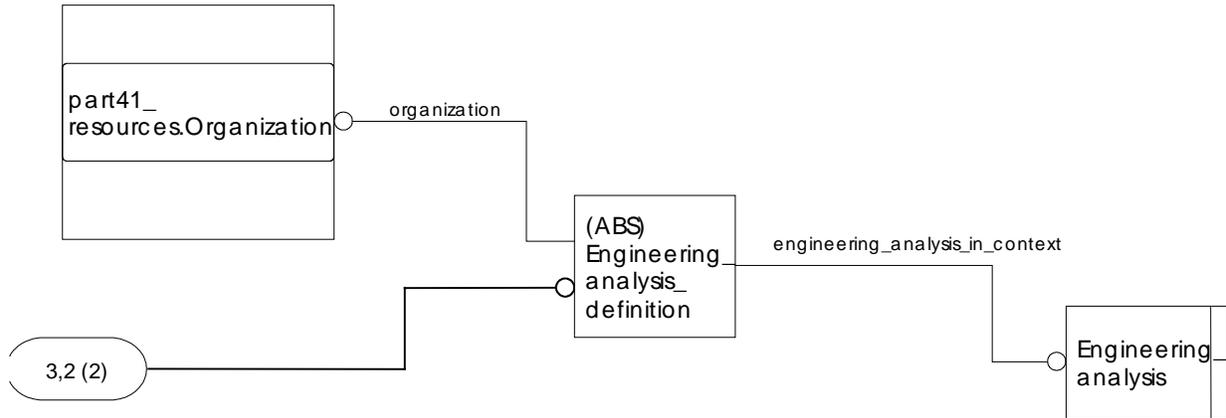


Figure G.15 - Graphical notation of the major aspects of the mechanical_product_definitions UoF schema (figure 3 of 3)

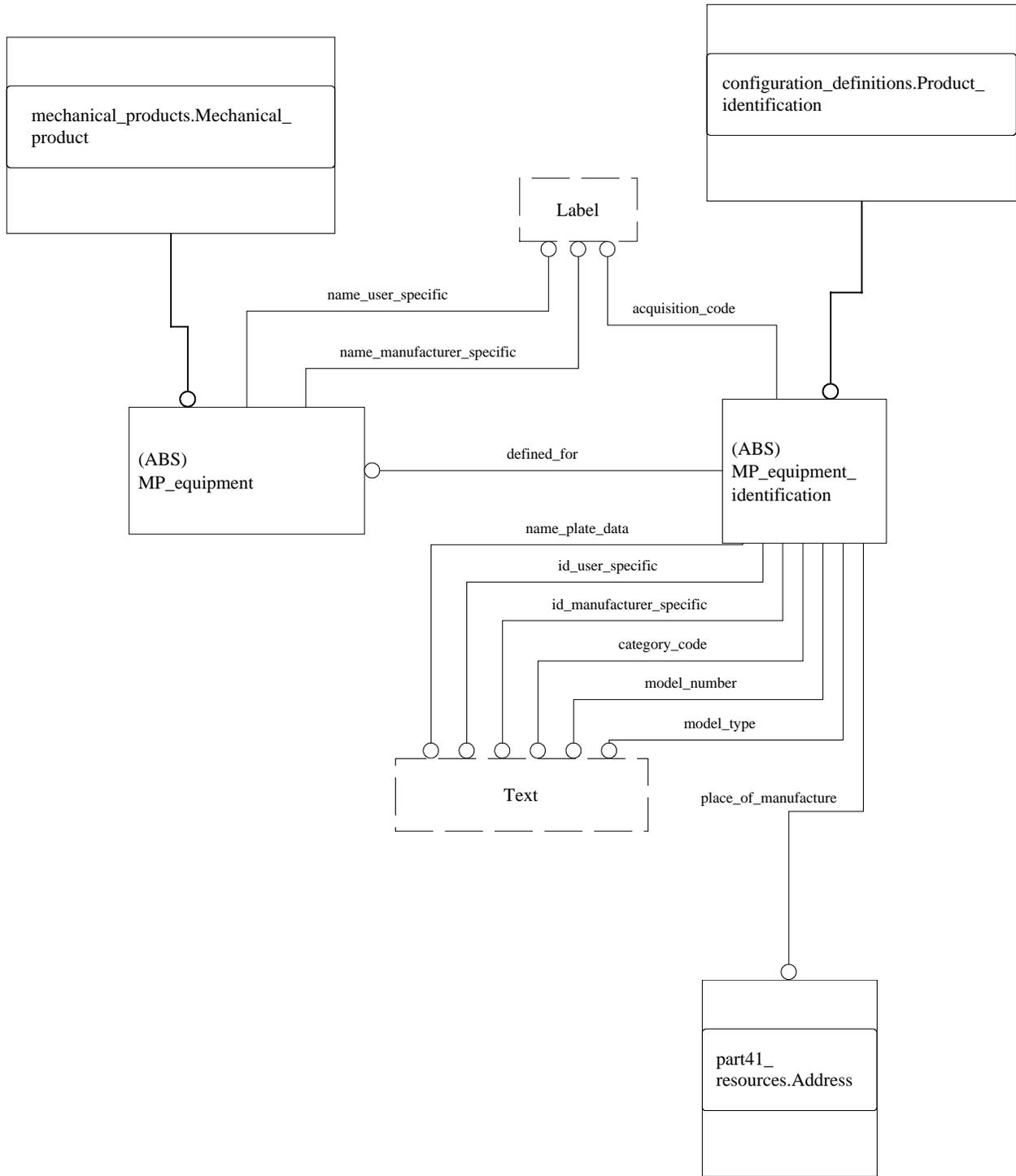


Figure G.16 - Graphical notation of the major aspects of the mechanical_product equipments UoF schema (figure 1 of 1)

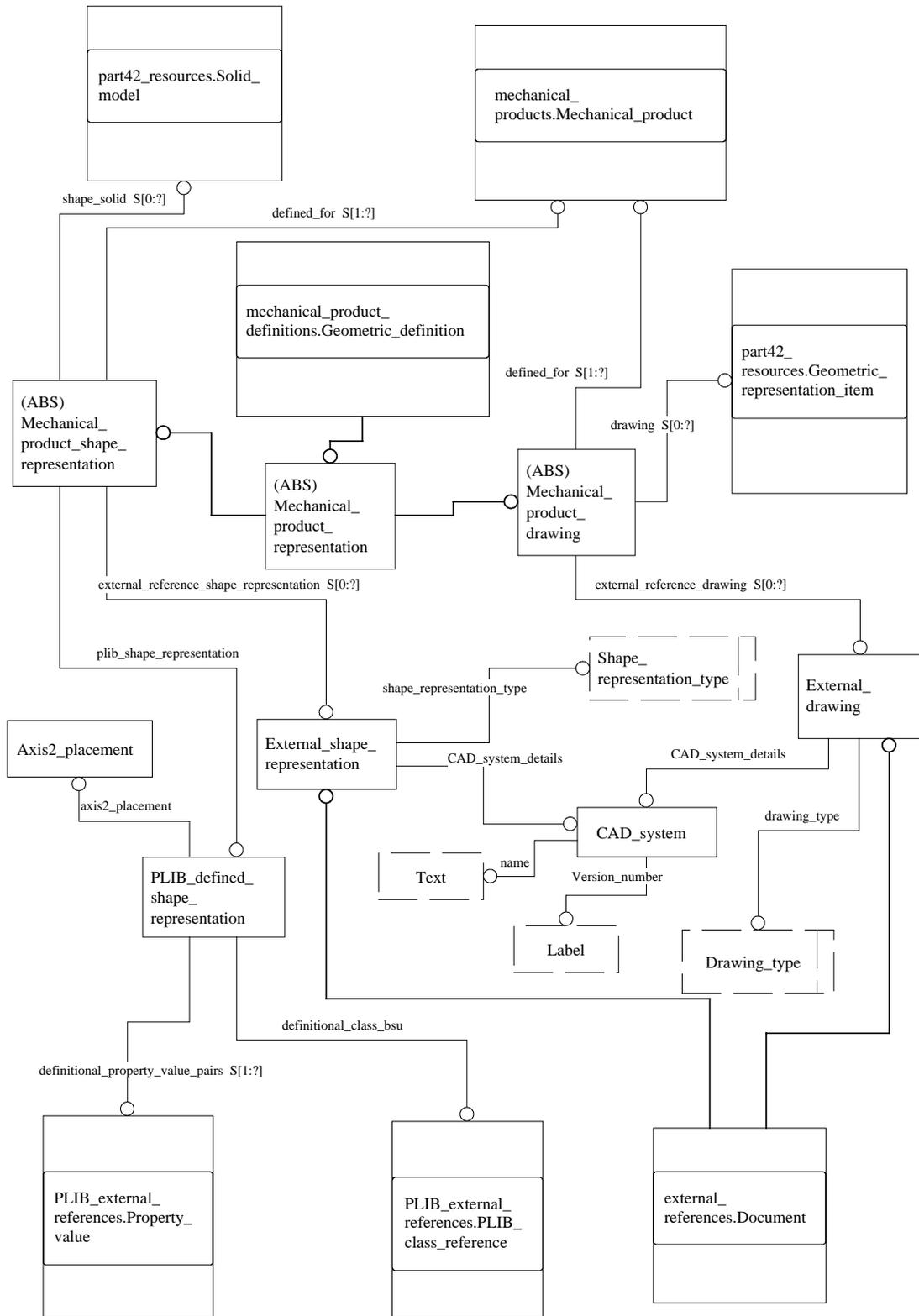


Figure G.17 - Graphical notation of the major aspects of the mechanical_product_representations UoF schema (figure 1 of 1)

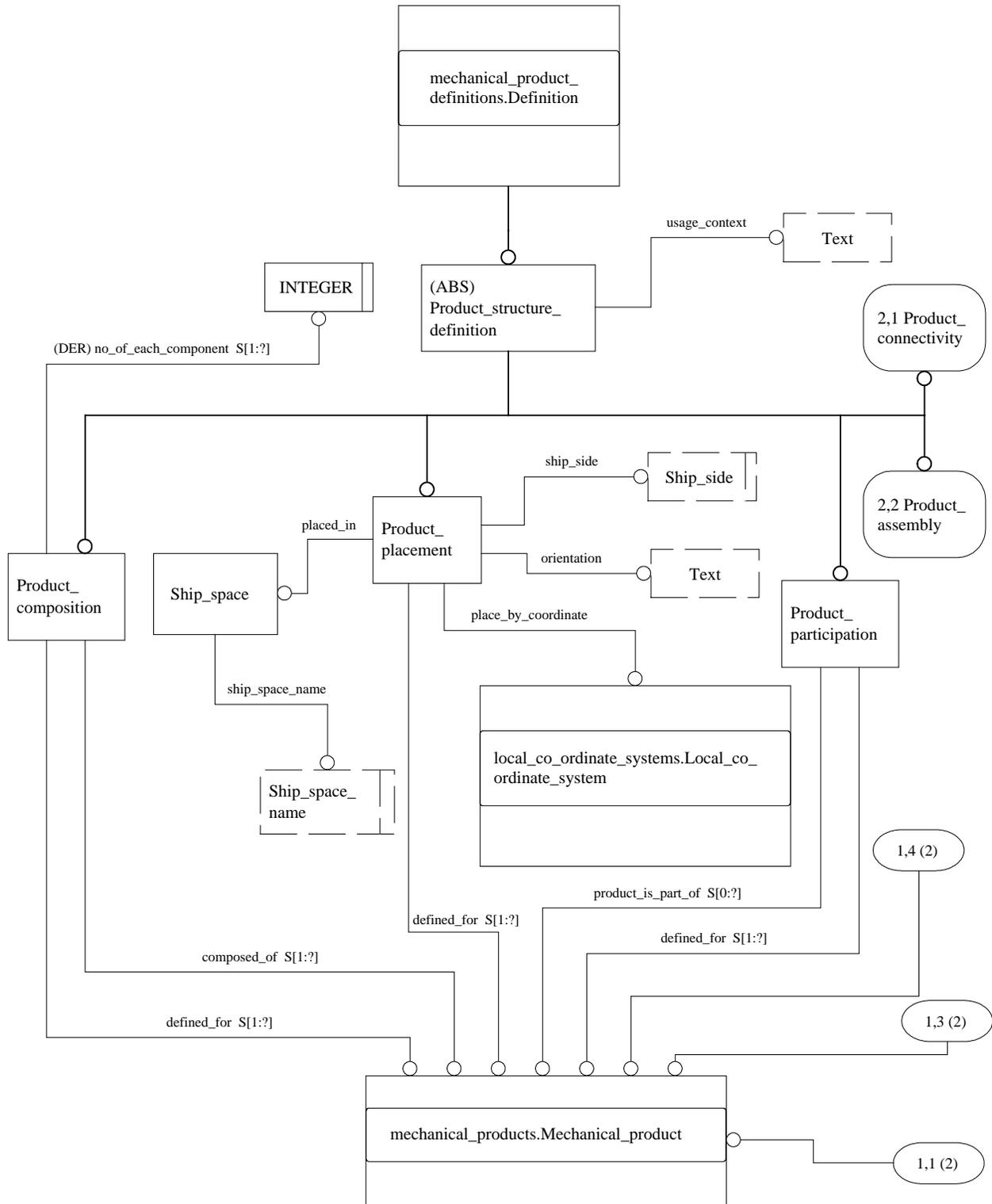


Figure G.18 - Graphical notation of the major aspects of the mechanical_product_structures UoF schema (figure 1 of 2)

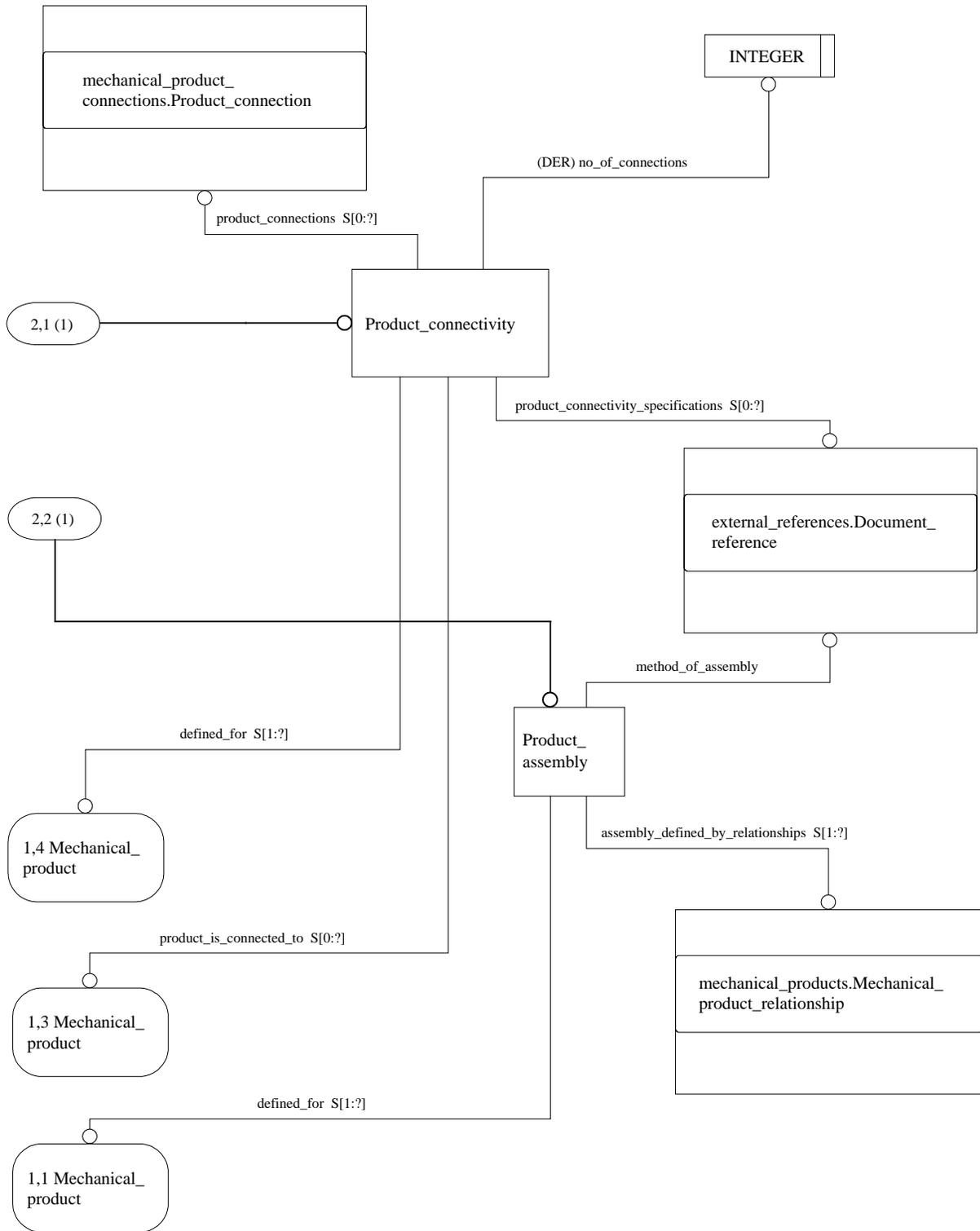


Figure G.19 - Graphical notation of the major aspects of the mechanical_product_structures UoF schema (figure 2 of 2)

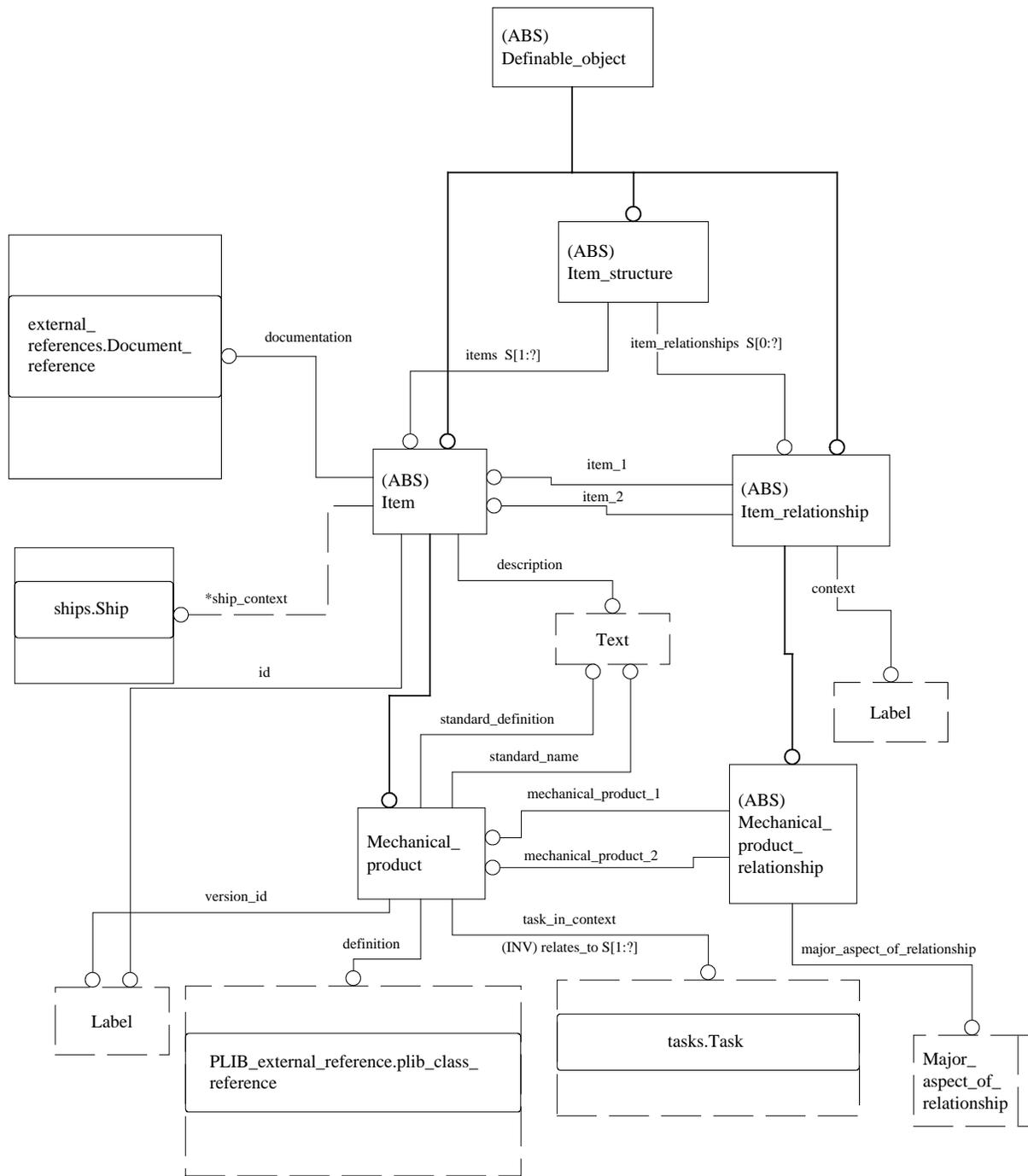


Figure G.20 - Graphical notation of the major aspects of the mechanical_products UoF schema (figure 1 of 1)

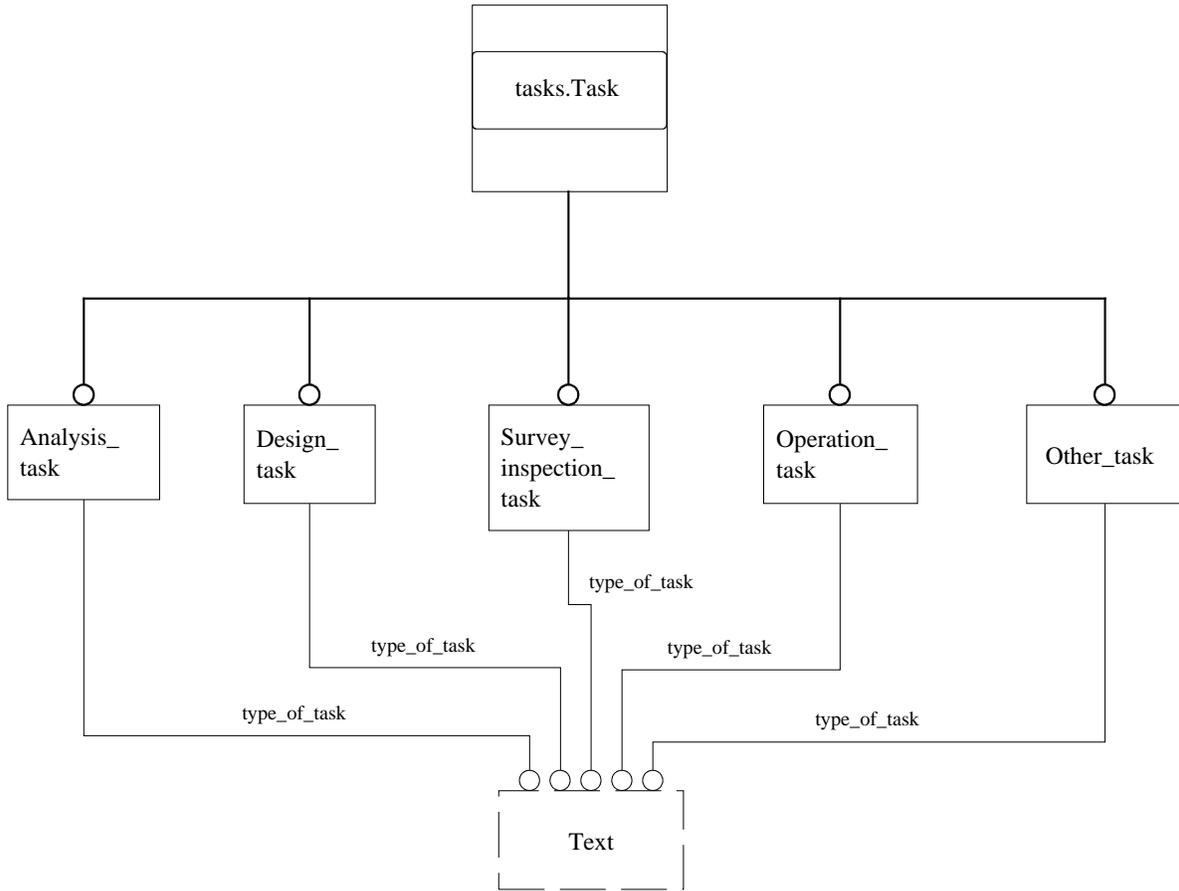


Figure G.21 - Graphical notation of the major aspects of the other_tasks UoF schema (figure 1 of 1)

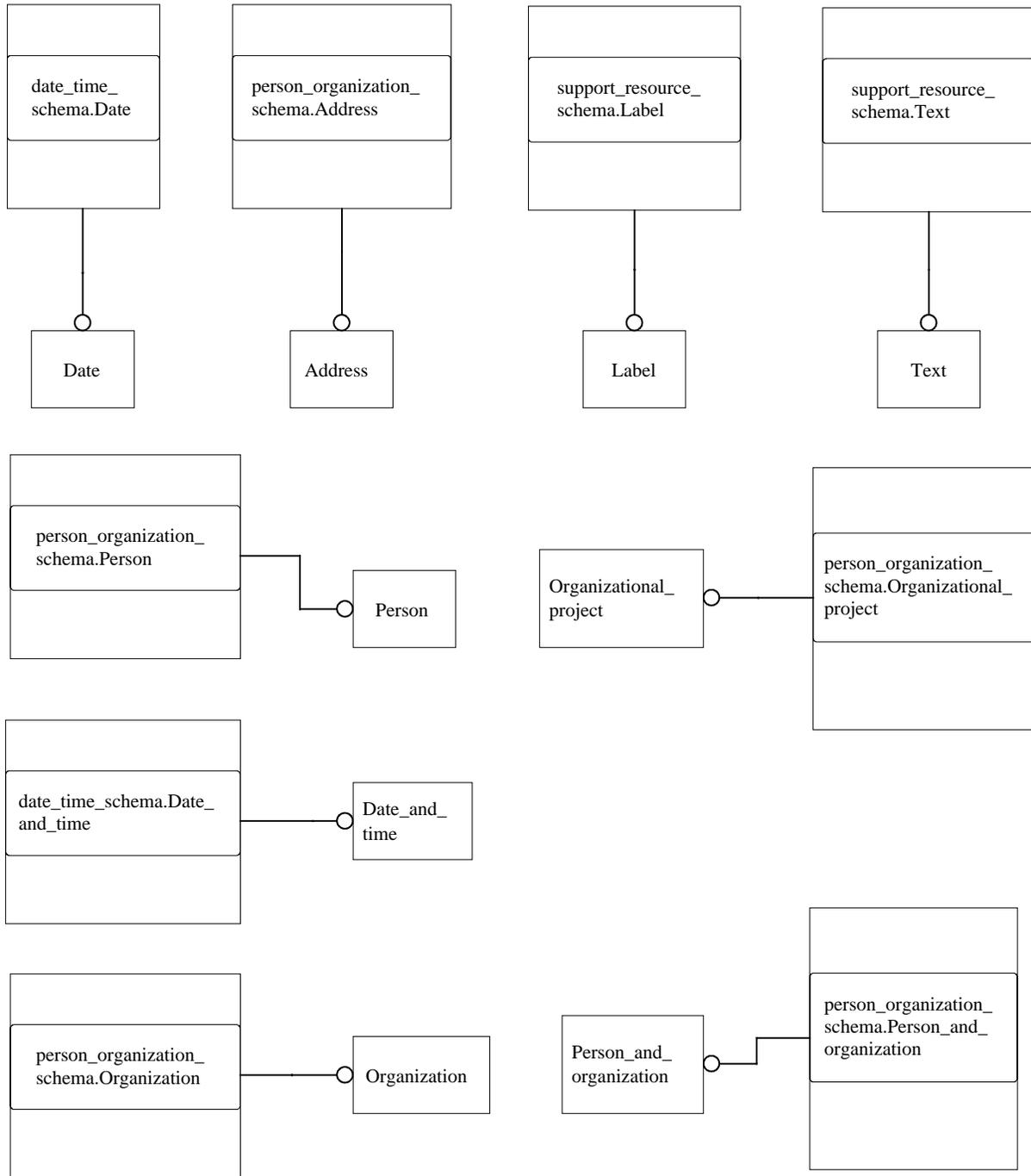


Figure G.22 - Graphical notation of the major aspects of the part41_resources UoF schema (figure 1 of 1)

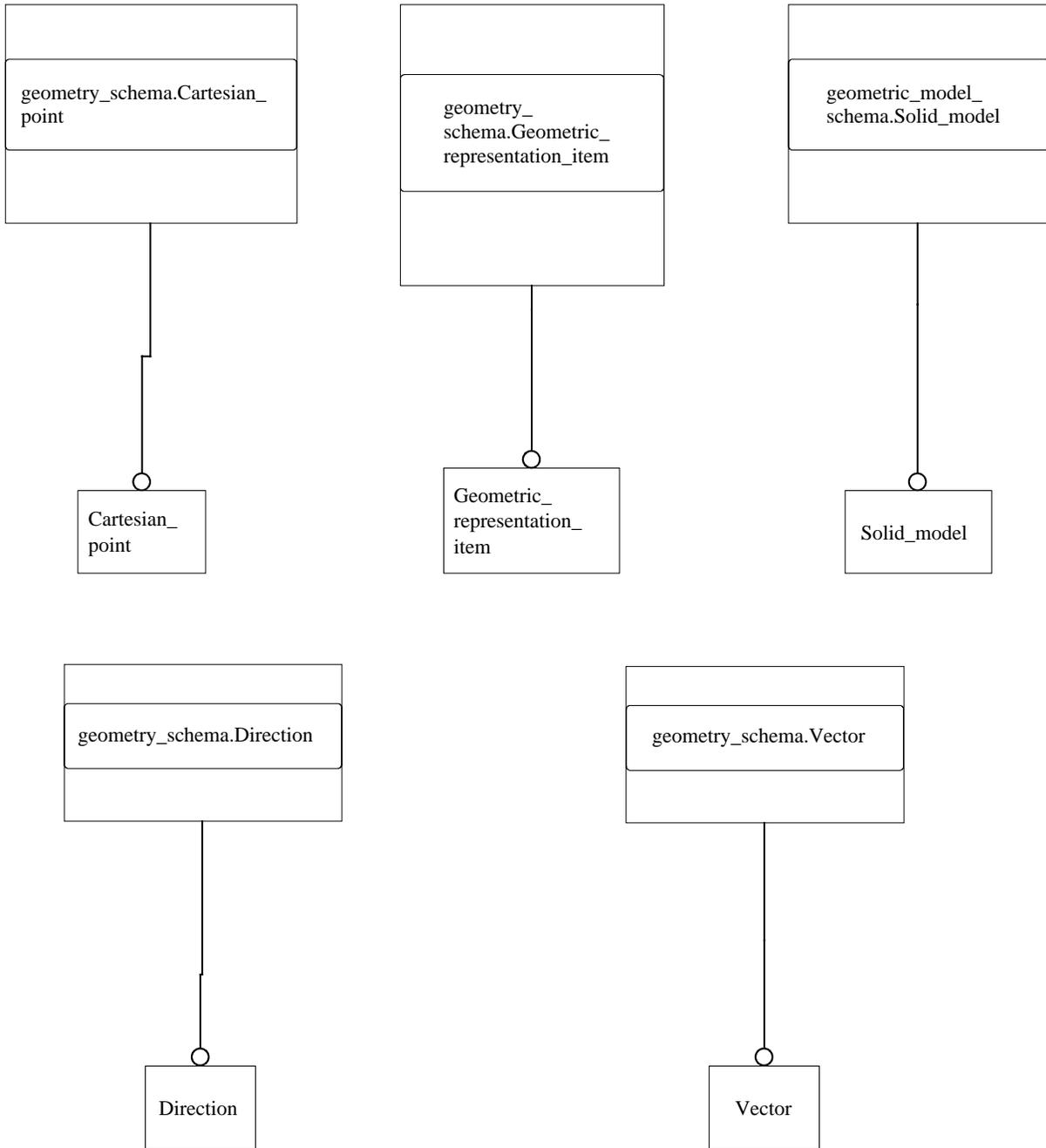


Figure G.23 - Graphical notation of the major aspects of the part42_resources UoF schema (figure 1 of 1)

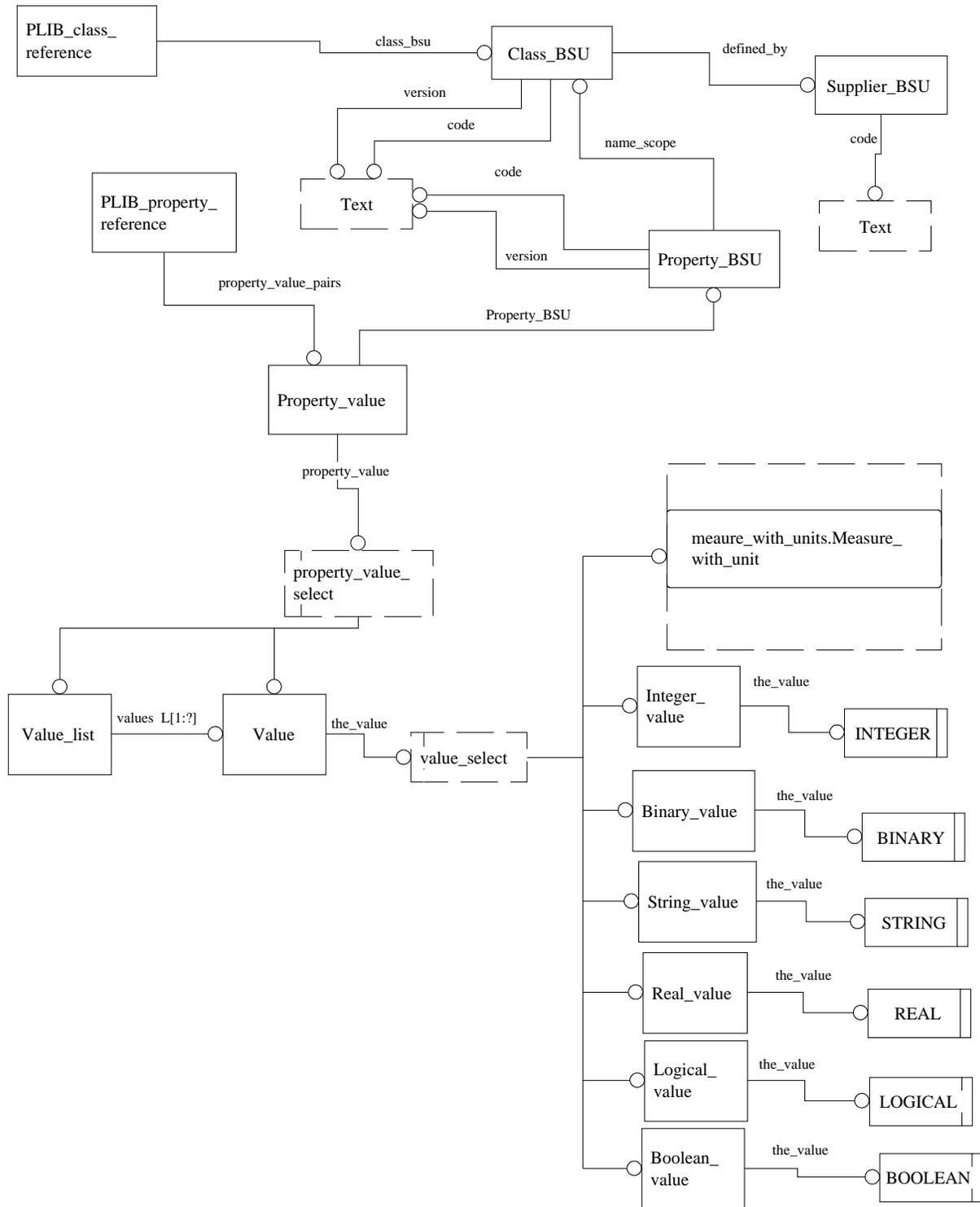


Figure G-24: PLIB_external_references UoF schema



Figure G.25 - Graphical notation of the major aspects of the RAM_characteristics UoF schema (figure 1 of 1)

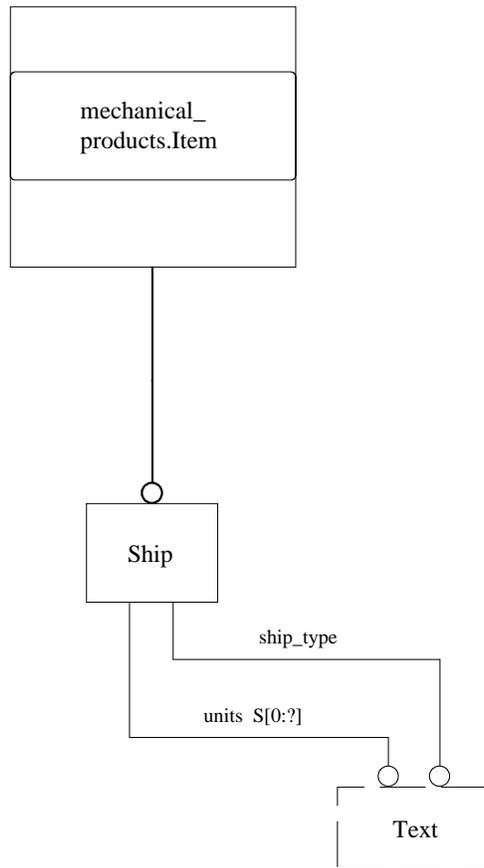


Figure G.26 - Graphical notation of the major aspects of the ships UoF schema (figure 1 of 1)

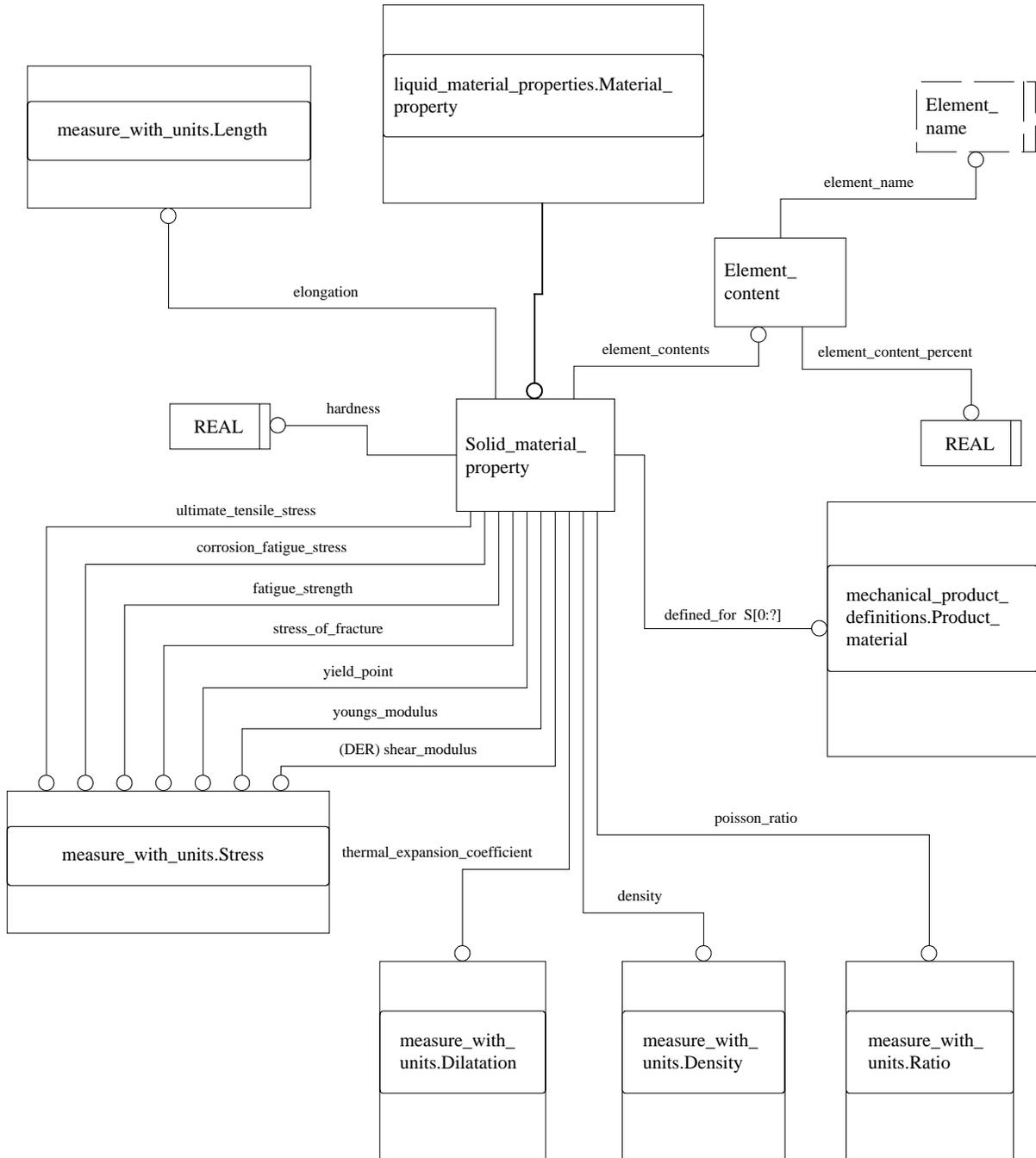


Figure G.27 - Graphical notation of the major aspects of the solid_material_properties UoF schema (figure 1 of 1)

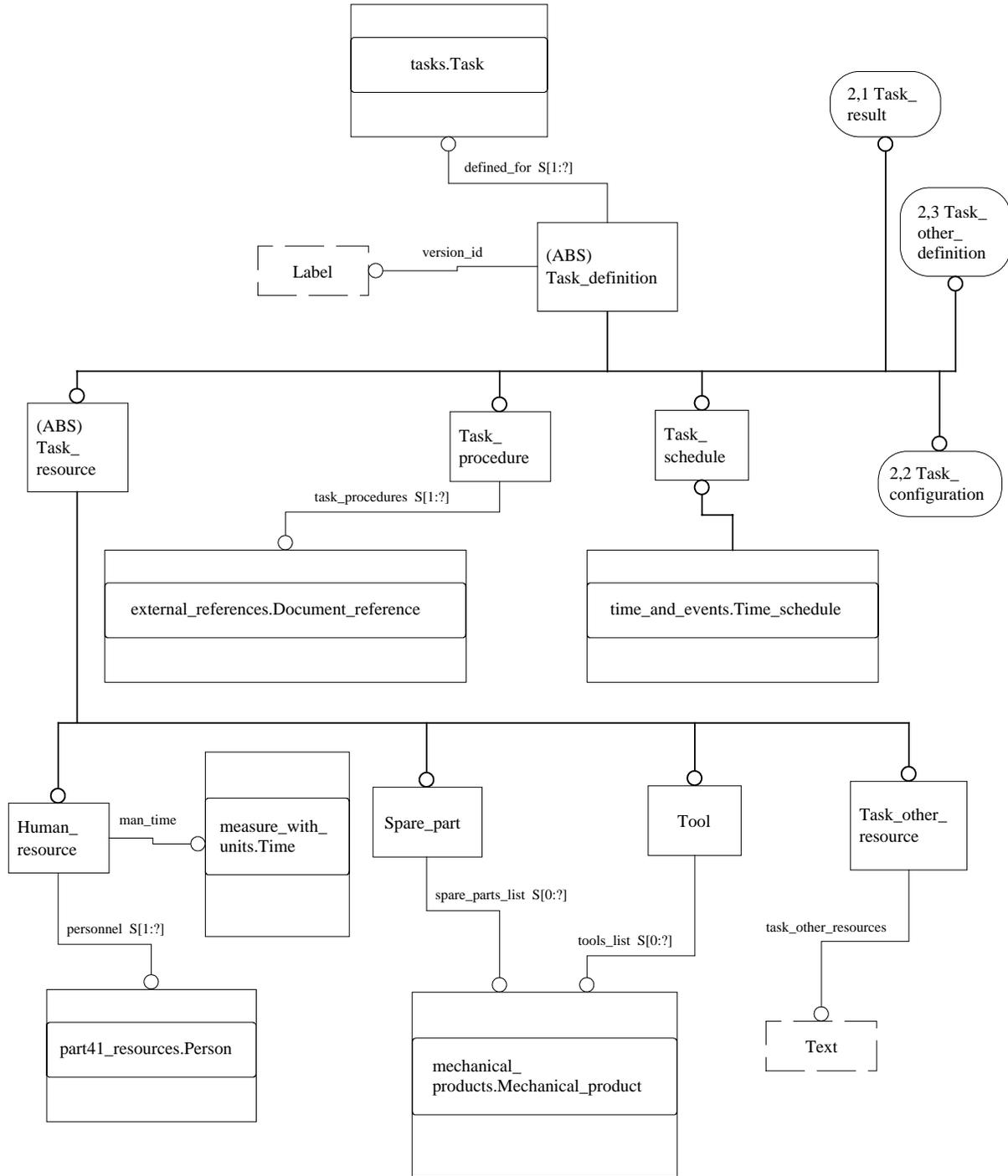


Figure G.28 - Graphical notation of the major aspects of the task_definitions UoF schema (figure 1 of 2)

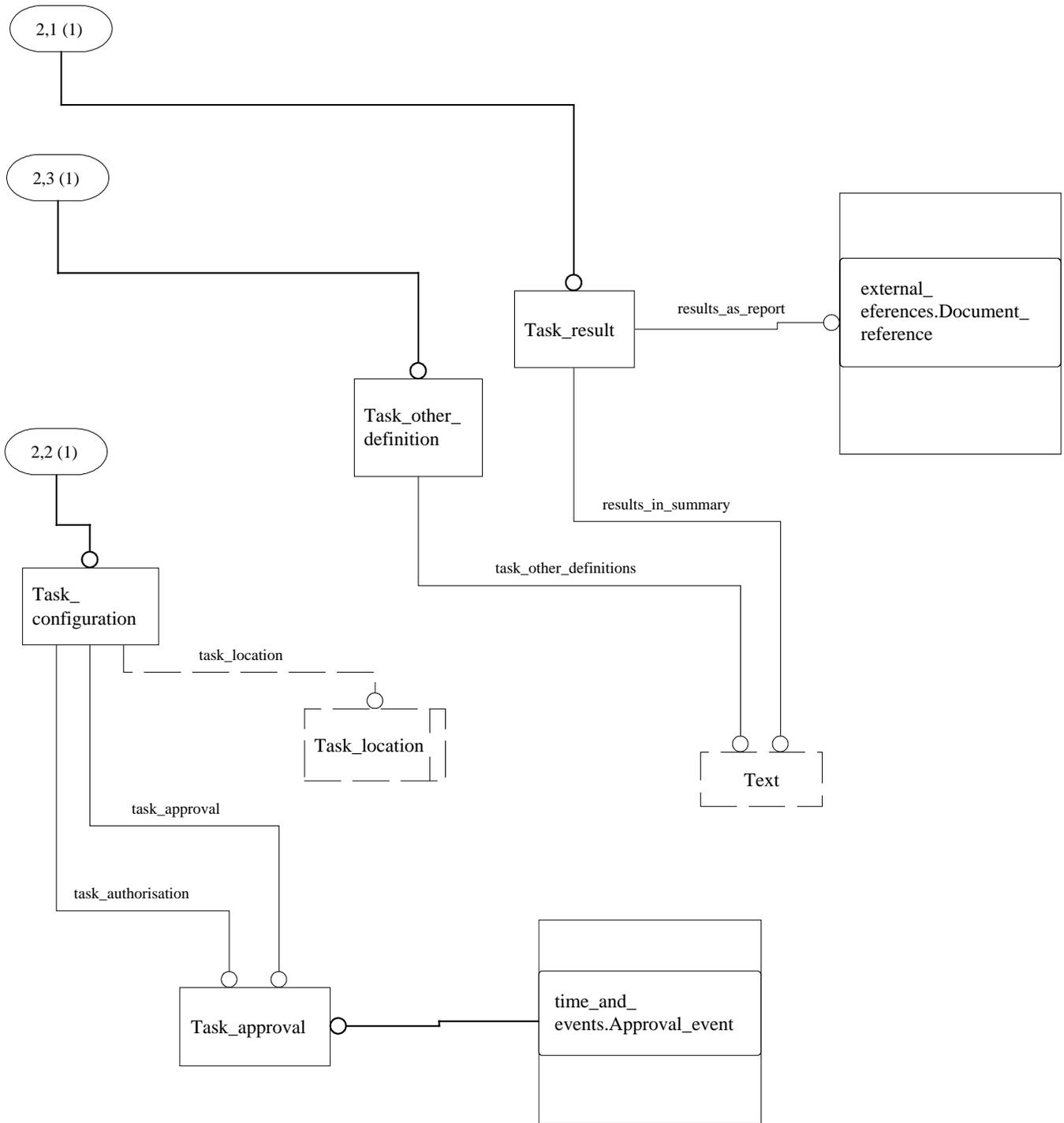


Figure G.29 - Graphical notation of the major aspects of the task_definitions UoF schema (figure 2 of 2)

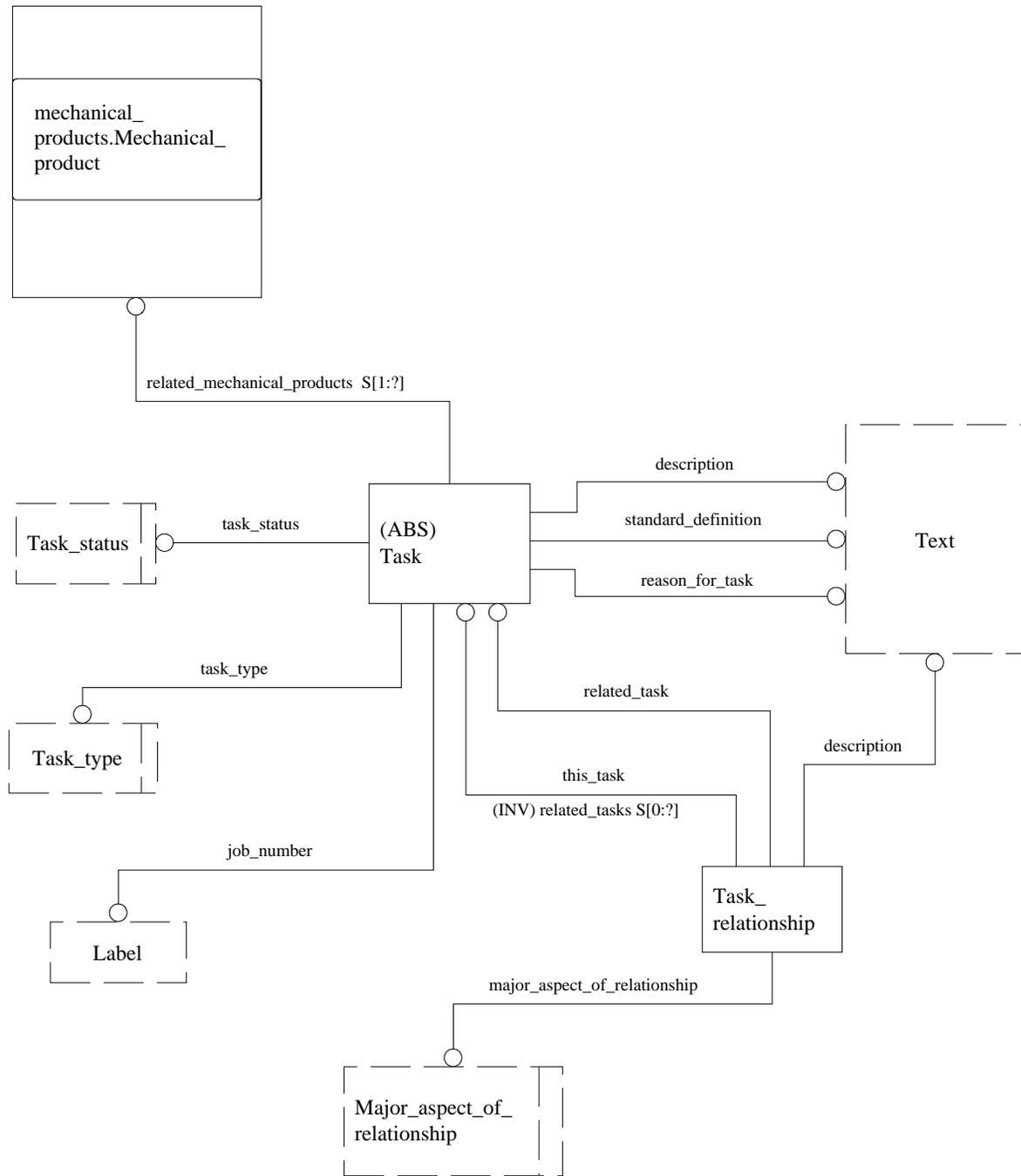


Figure G.30 - Graphical notation of the major aspects of the tasks UoF schema (figure 1 of 1)

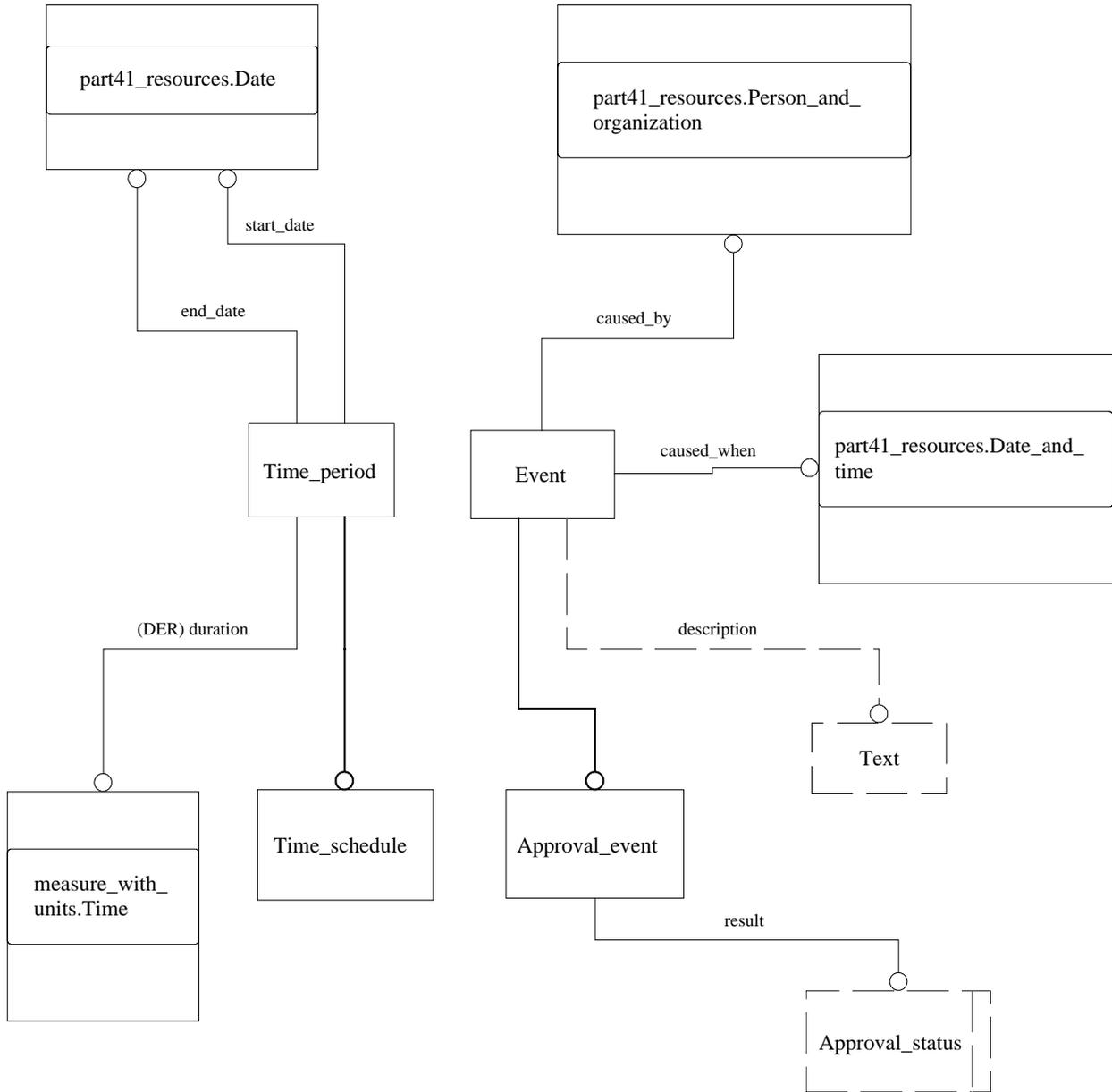


Figure G.31 - Graphical notation of the major aspects of the `time_and_events` UoF schema (figure 1 of 1)

Annex H
(informative)

AIM EXPRESS-G

To be completed at a later date.

Annex I
(informative)

AIM EXPRESS listing

To be completed at a later date.

Annex J
(informative)

Annex K (informative)

Technical discussion

K.1 Introduction

This annex has been prepared in order to provide the general and introductory information on technical methodology adopted within this part of ISO 10303. This annex describes the following:

1. An introduction to STEP and ship product related Application Protocols with special reference to Part 226 on Ship Mechanical Systems.
2. Concepts common to all ship product Application Protocols, including type hierarchies related to concept of item, definitions and association of definitions to item.
3. Architecture of AP226 data model including the AP226 data planning model and description of how the full scope of AP226 is embodied in the data model.

The expected audience of this annex are those who intend to either review this part of ISO 10303 or subsequently use and implement this standard.

K.2 STEP and Ship Application Protocols

K.2.1 What is Step?

The STEP initiative was officially begun in 1984 as a means of facilitating concurrent engineering within the manufacturing industry. STEP is the widely used name for **ISO 10303 - Product Data Representation and Exchange** and is being developed under the guidance of the ISO Technical Sub-Committee **TC184/SC4**.

The aim of STEP, the STandard for the Exchange of Product model data, is the complete and unambiguous representation of a product such as a ship, a car, or an airplane, throughout its lifetime, in a computer interpretable neutral format. As such, the STEP initiative is directed towards enabling a product to be consistently represented from the requirement definition stage of its life, through the conceptual design, production and through-life operation and maintenance stages and then finally into the decommissioning phases. The ability to define data will enable organizations to reuse, exchange and share data to mutual advantage. With so much variety, it would be easy for STEP to be too complex to be useful. To avoid this, the STEP standard has user specific parts, each of which describes:

- The standard data definitions for that particular application area.
- How that data will be exchanged or shared

These parts are known as **Application Protocols (AP)**.

K.2.2 The STEP Ship Model

The STEP ship model is a subset of the wider ISO STEP initiative. It currently comprises five application protocols which are under development. These are:

AP215	Ship Arrangements	AP218	Ship Structures
AP216	Ship Moulded Forms	AP226	Ship Mechanical Systems
AP217	Ship Piping Systems		

The above series of ship product application protocols assumes that the ship as a product can be divided into separate ship systems such that each covers a key element of the ship for its entire life cycle. These key systems are: ship moulded forms, ship arrangements, ship distribution systems (piping, heating, ventilation and air conditioning, and electrical/cableway), ship structure, ship mechanical systems, ship outfit and furnishing, and ship mission systems (see Figure L.1).

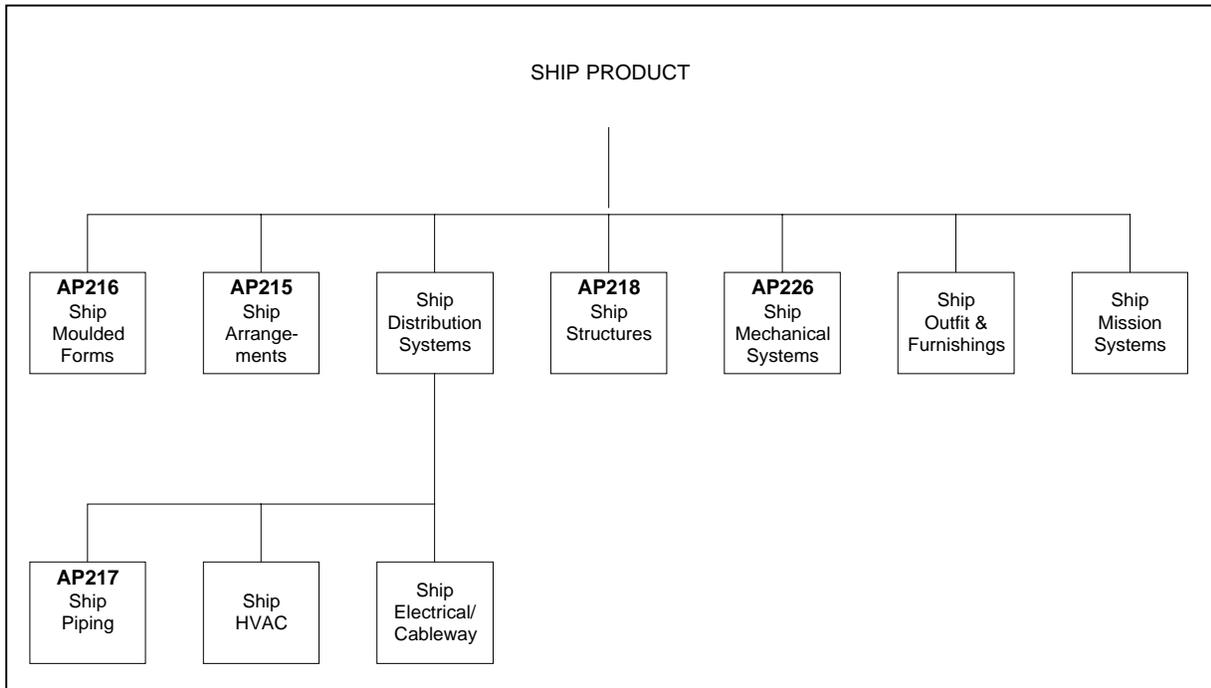


Figure K.1 - Ship product application protocols

Each separate system is described by one or more different application protocols. The development of these application protocols involves input from organisations from all aspects of the shipping community world-wide: shipbuilders, marine engineering component suppliers, shipowners, classification societies and so on.

K.2.3 AP226: Ship Mechanical Systems

The scope of the AP226 encompasses the following physical systems: propulsion systems, auxiliary systems and deck machinery including all of their major equipment. Each of these systems are currently broken down into sub-groupings in order to facilitate information capture for various components within the decomposition hierarchical structure. These are documented in Annex M. AP226 will provide a life

cycle view of the above systems covering information requirement from concept through design/selection, operation, monitoring, inspection to decommissioning (see Figure L.2). This life cycle view will provide a powerful infrastructure for developing data storage, data handling and application modules for concurrent engineering in shipbuilding and for ship-board systems and ship to shore data communication in shipping.

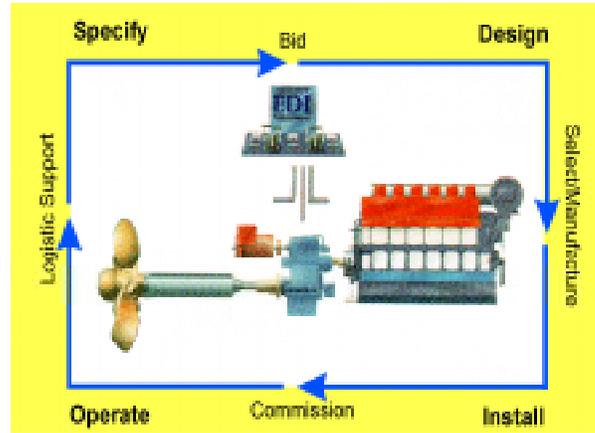


Figure K.2 - Schematic representation of ship mechanical system's life cycle concept

K.3 Concepts Common to Ship Application Protocols

ISO 10303-226 is being developed to support the exchange and sharing of Ship Mechanical Systems data. ISO 10303-226 has been developed in conjunction with other ship product application protocols so that important shipbuilding concepts are common and inter-operable within the STEP standard.

K.3.1 Mechanical Product Type Hierarchy

The method by which this part of ISO 10303 generalises and integrates the information spanning the domain of a large number of mechanical products (see 3.8.103) is via a hierarchical partitioning commonly known as a type hierarchy. The nature of such a hierarchy is that those objects close to the root of the hierarchy represent the more general objects, while those at the leaves represent the most specialised.

The main components of the type hierarchy employed in this part of ISO 10303 are shown in Figure L.3. Fundamental to the organisation of the information is the concept of the item (see 3.8.82) within the wider ship APs and the mechanical product within this part of ISO 10303. The mechanical product is a discrete identifiable thing with which definitions (see 3.8.43) and activities (see 3.8.2) are associated. It serves as the most general object from which more specialised objects are derived.

K.3.2 Definitions Type Hierarchy

Definitions describe mechanical products and are, as a result, the descriptive information-bearing entities of the model. A definition may be further classified as a physical, functional and so on definition. A mechanical product may have many different versions of definitions. The main components of the definitions type hierarchy employed in this part of ISO 10303 are shown in Figure L.4.

K.4 Architecture of the data model

The main structure of the data model embodied in the ARM of AP226 is characterised as the type hierarchies shown in Figures L.3 and L.4 in which general constructs (e.g. Mechanical Product, Definition) are successfully specialised in each lower level of the hierarchy. This characteristic provides both flexibility and a mechanism by which very specialised constructs (e.g. “diesel_engines”, “RAM_data” and so on) can be described.

In addition to flexibility and the ability to selectively specialise concepts of interest, this structure provides the following advantages;

- The top levels of the hierarchy can be effectively integrated and aligned with the core concepts and facilities common to the entire set of ship-related application protocols, thus providing for the possibility of inter-AP integration.
- The mid-levels of the hierarchy can be specialised into constructs describing the major types of shipboard systems and equipment.
- The lowest levels of the hierarchy can be fully specialised into constructs to describe specific items of mechanical products (e.g. diesel engine,.....).

In dealing with ship mechanical systems, which are effectively a composition of hundreds and thousands of various mechanical products, the approach taken seems to provide a solid basis for capturing all the industrial requirements.

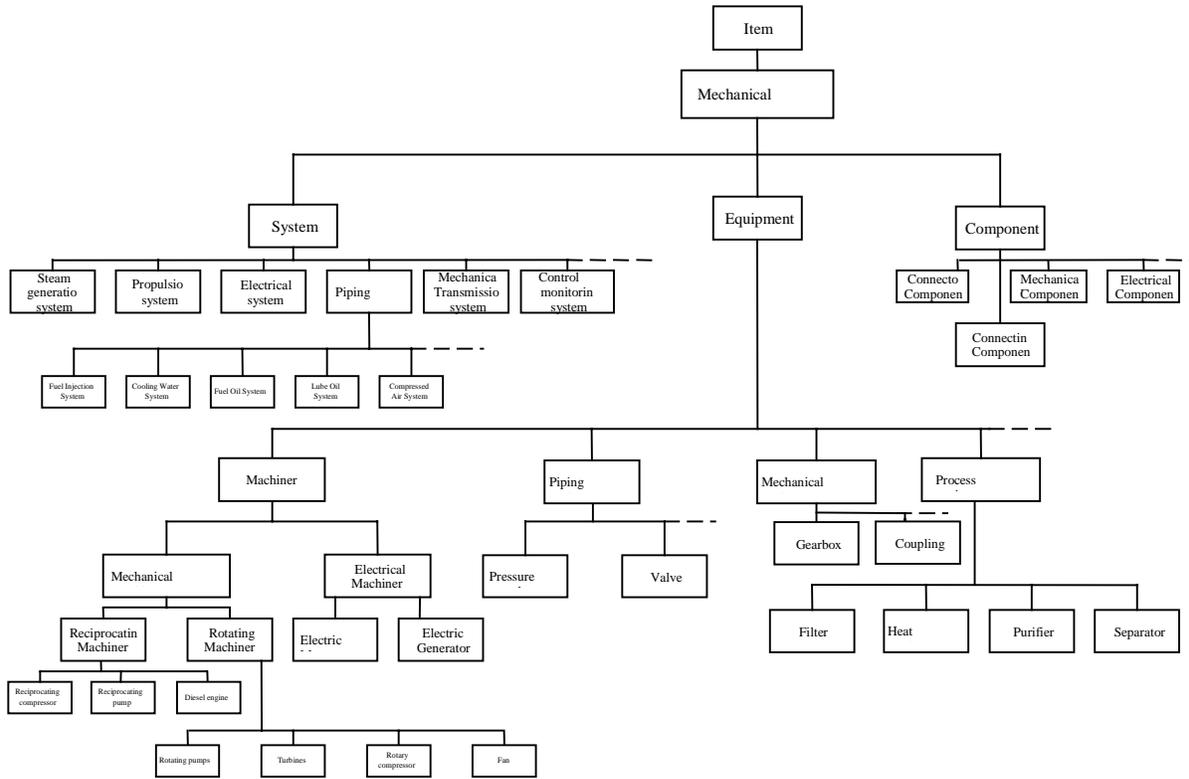


Figure K3 - Mechanical product type hierarchy

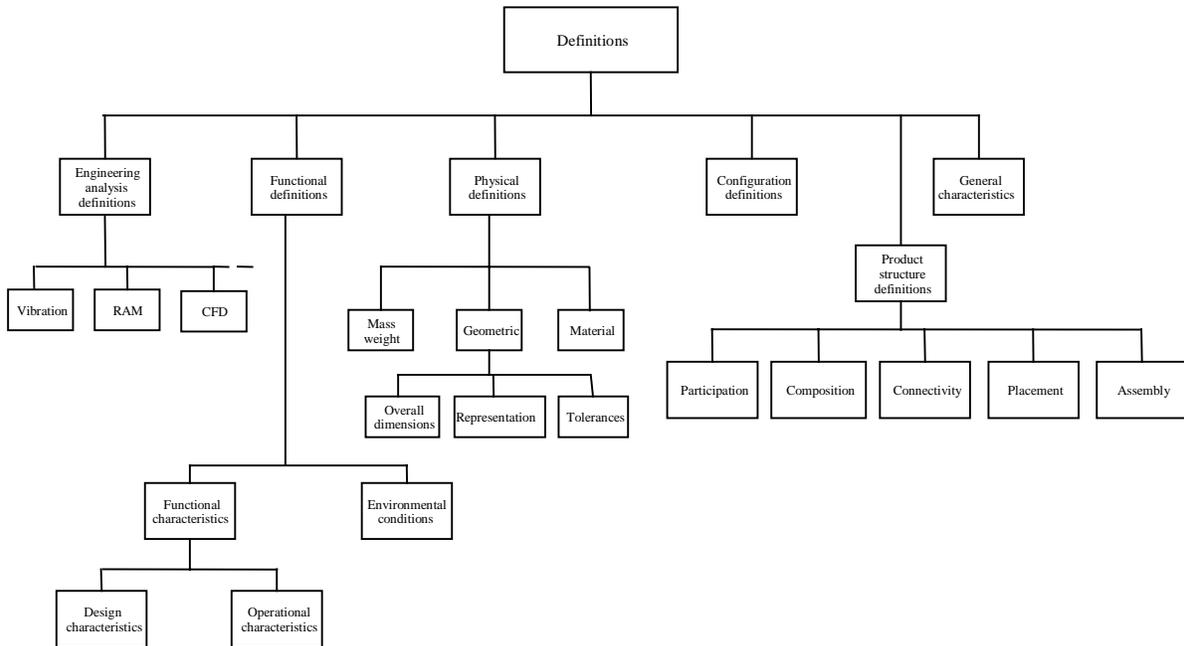


Figure K.4 - AP226 product definition type hierarchy

K.5 AP226 Data Planning Model

K.5.1 - What is a data planning model

A data planning model presents all the units of functionality (UoF) together with their major relationships (see Figure L.5). As such, it provides an overview of the Application Reference Model (ARM) without too much detail. It can be used to check whether the different components of the model fit properly together. It is generally agreed that such a data planning model is useful when dealing with complex product models such as those developed within STEP. The data models developed within STEP are documented in EXPRESS and EXPRESS-G and as such are not fully comprehensible to application experts. A data planning model can to some extent overcome this shortcoming.

This section presents the data planning model for AP226. The main audience of this section is assumed to be the application experts.

K.5.2 Data planning model

Figure L.5 shows the data planning model, representing all the AP226 UoFs. A brief description of the role of each UoF follows:

configuration_definitions: The configuration_definitions UoF specifies the concepts for keeping high level records and information relating to product identification and its usage context. Concepts such as associating the product to contracts/projects and assigning the ownership of product are supported. The configuration_definitions UoF also supports the life cycle identification of a mechanical product and whether a mechanical product represents a conceptual, designed, planned or a real thing.

cranes: The cranes UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a crane.

diesel_engines: The diesel_engines UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a diesel engine.

external_references: The external_references UoF specifies an external reference mechanism to assign additional documentation in electronic or non-electronic form to the product, task/activity or definitions. The external_references UoF also facilitates access to information, standard or non-standard, on ship mechanical systems that are outside the scope of this part of ISO 103030.

gas_material_properties: The gas_material_properties UoF specifies the framework for grouping of the gas properties into physical, chemical and other types of properties and their association with a gaseous material.

lifting equipments: The lifting equipments UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a lifting equipment.

liquid_material_properties: The liquid_material_properties UoF specifies the framework for grouping of the liquid properties into physical, chemical and other types of properties and their association with a liquid material.

local_co_ordinate_systems: The local_co_ordinate_systems UoF specifies location of a mechanical product within the coordinate system.

machineries: The machineries UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a machinery (see 3.8.88).

maintenance_tasks: The maintenance_tasks UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a maintenance task.

measure_with_units: The measure_with_units UoF specifies the concept for representing measures for physical quantities together with their units.

mechanical_machineries: The mechanical_machineries UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a mechanical machinery (see 3.8.101).

mechanical_product_anomalies: The mechanical_product_anomalies UoF specifies the concept and framework for type hierarchy and grouping of different types of engineering information relating to product anomaly (see 3.8.6).

mechanical_product_components: The mechanical_product_components UoF specifies the concept for defining the type hierarchy and classification of the mechanical components not defined in other UoFs

mechanical_product_connections: The mechanical_product_connections UoF specifies the concept for defining the physical connections between mechanical products.

mechanical_product_definitions: The mechanical_product_definitions UoF specifies the high level concept and framework for type hierarchy and grouping of all the engineering information (descriptions and properties) which are attributable to mechanical products.

mechanical_product equipments: The mechanical_product equipments specifies the high-level concept for representing the generic class of equipment (see 3.8.58) and association of all the relevant definitions (see 3.8.43) to this class.

mechanical_product_general_characteristics: The mechanical_product_general_characteristics UoF specifies the concept for collecting all the information which is attributable to general characteristics (see 3.8.77) of a mechanical product.

mechanical_product representations: The mechanical_product representations UoF specifies the concept for the representation of a mechanical product's detailed geometric definitions in the form of shape representation (solid model) and drawing. The mechanical_product representations UoF also facilitates the exchange of identification information on drawings, in addition to the exchange of drawing themselves.

mechanical_product structures: The mechanical_product structures UoF defines the internal composition (see 3.8.26), external participation (being part of something else), connectivity, position and orientation of mechanical products. The mechanical_product structures UoF provides the ability to exchange description of the position of a mechanical product and its arrangement.

mechanical_product systems: The mechanical_product systems UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a mechanical system (see 3.8.104).

mechanical_products: The mechanical_products UoF specifies the high level concept for defining the type hierarchy and classification of mechanical products (see 3.8.103) in a compatible way to other ship APs.

other equipments: The other equipments UoF specifies the concept for defining the type hierarchy and classification of those equipments (see 3.8.58) which have not been defined in other UoFs.

other tasks: The other tasks UoF specifies the concept for defining the high-level information relating to tasks (see 3.8.155) which have not been defined in other UoFs.

part41 resources: The part41 resources UoF specifies all the application objects which are in ISO10303-41 and are used by this part of ISO 10303.

part42 resources: The part42 resources UoF specifies all the application objects which are in ISO10303-42 and are used by this part of ISO 10303.

RAM characteristics: The RAM characteristics UoF specifies the concept for collecting the data and information relating to a mechanical product's RAM characteristics (see 3.8.132).

reciprocating machineries: The reciprocating machineries UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a reciprocating machinery (see 3.8.133).

screw propellers: The screw propellers UoF specifies the concept for associating all the relevant definitions (see 3.8.43) to a screw propellers (see 3.8.136).

ships: The ships UoF specifies the information required to describe the ship. All ship product data are defined independent of the ship and have a reference to it. The ships UoF describes the essential information to permit that reference. This UoF is common to ship related application protocols.

solid material properties: The solid material properties UoF specifies the material properties and their association with a solid material.

task definitions: The task definitions UoF specifies the high level concept and framework for type hierarchy and grouping of all the data and information which are attributable to tasks (see 3.8.155).

tasks: The tasks UoF specifies the concept for defining the high-level information relating to tasks (see 3.8.155). Concepts for relating tasks to each other and identification of major aspects of relationship are also supported by the tasks UoF.

time and events: The time and events UoF specifies the concept for describing the events and their authorisation and approval. All the events which take place during the various stages of the ship life cycle are in the scope of the time and events UoF

(THIS DIAGRAM WAS NOT AVAILABLE ELECTRONICALLY. TO BE SCANNED.)

Figure K.5 - AP226 Data Planning Model

Annex L
(informative)

Mechanical System Breakdown Hierarchy

L.1 Introduction

The AP226 scope covers the ship's mechanical systems which include the propulsion system, auxiliary systems and deck machinery. The schematic representation of the scope of AP226 is shown in Figures M.1 and M.2 (not shown).

In order to make sure that the full scope of AP226 is covered, physical and life-cycle decomposition techniques were adopted. This annex provides details of the breakdown structure for selected mechanical products.

L.2 System Breakdown

The aim of the system breakdown (decomposition) is to identify all the physical sub-systems and components of a main mechanical product. In effect, it is a hierarchical decomposition which is carried out in a top-down fashion. The decomposition is carried out to the lowest component level for which information is needed to be exchanged. This lowest level is normally defined by exchange scenarios.

The breakdown is normally illustrated either by a block diagram or by an indented table, in which each component has been assigned a level to illustrate its position within the hierarchy as well as its parent-child relationship. The breakdown structure for selected mechanical products (diesel engine, propulsor, mechanical transmission systems and manoeuvring system) has been completed and is provided in the following sections:

L.3 Breakdown Structure for Diesel Engine

This has been documented in report TID_PE5220_DD1.0 dated 5 December 1996. *This report will be added here at a later stage.*

L.4 Breakdown Structure for Propulsor

This has been documented in report TID_PE5220_DD1.0 dated 5 December 1996. *This report will be added here at a later stage.*

L.5 Breakdown Structure for Mechanical Transmission System

This has been documented in report TID_PE5220_DD1.0 dated 5 December 1996. *This report will be added here at a later stage.*

L.6 Breakdown Structure for Manoeuvring System

This has been documented in report TID_PE5220_DD_addendum dated 20 February 1997. *This report will be added here at a later stage.*

Annex M (normative)

Ship mechanical components dictionary

M.1 Introduction

The annex specifies a dictionary of component classes and properties for ship mechanical systems compatible with ISO 13584-42. The dictionary contains:

- a classification scheme for ship mechanical components;
- definitions of the classes for ship mechanical components;
- definitions of the properties for ship mechanical components.

The collection of classes and properties in this annex form an integral part of this part of ISO 10303. They are meant for use in computerised systems for component selection and component management, parts list processing and computer-aided design, manufacturing and testing.

M.1.1 Sources of information

The main source of information for this work is a previous version of this part of ISO 10303, TC184/SC4/WG3 N730.

M.1.2 Notation conventions

The following graphical rules are used in the classification trees in this annex:

- "mechanical product" is the name of a class; the definition of the class is given in the clause N.3.3 of the annex.
- "*mechanical product type*" is the name of a visible property (in the ISO 13584-42:—¹⁾ sense) that characterizes the class identified by the previous class name; the property definition is given in the clause N.4 of the annex. The applicability of this property is defined for each class to which the class applies to.

M.1.3 Rules

To construct the dictionary, the following rules are applied:

- the inheritance mechanism is applied to the object properties,
- a class is not used to define a specific valued property of an object,
- a sub-class is introduced when this sub-class defines some specific properties that do not apply to all the instances of the super-class,
- a sub-class is introduced when this sub-class is related to an identified ICS class.

Each class is associated with one class valued property that takes a different value in each of its direct sub-classes. This feature is intended to facilitate class selection during a search process. Using these class valued properties, a set of classes may be selected either by their class codes, or by the values of some value properties.

Other rules could be defined for the continuation of this work.

¹⁾ To be published.

M.1.4 Component classification principles

For the classification of components, the principle of dividing the whole set of components into parts has been applied repeatedly, thereby creating a hierarchical tree of several levels of classes. The goal of this classification scheme is to arrange the data element types in an unambiguous-structured way. A detailed description of the classification principles is given in ISO DIS 13584-42

M.1.5 Component class BSU_code

A component class ISO 13584 is identified by an BSU_code. In this dictionary the following structure has been adopted:

"MPC_NNNNNNNNNN"

in which :

- "MPC" is a prefix characterizing a component class identifying a mechanical product object.
- "NNNNNNNNNN" is an extension number used to distinguish the different component class with the same ICS class code.

M.1.6 Component class attributes

The various attributes of the component classes in clause M.3 of this annex are explained with the aid of Figure M.1 below. The layout is shown as used in this part of ISO 10303.

		1		8		9		2
		?		?		?		?
L1		MPC_0000000_001		001		01		MPC_0000000_010
L2	3	???????	mechanical product		4	?????		MECHANICAL PRODUCT
L3	7	???????	a ship mechanical product is an individually identifiable mechanical product as defined by AP226.					
L4	5	???????	MPP_0000000_070	mechanical product description				
		?	MPP_0000000_071	mechanical product identifier				
		?	MPP_0000000_072	mechanical product name				
		?	MPP_0000000_073	mechanical product type				
L5	6	???????	MPP_0000000_070	mechanical product description				
		?	MPP_0000000_071	mechanical product identifier				
		?	MPP_0000000_072	mechanical product name				
		?	MPP_0000000_073	mechanical product type				
L6	10	?????????	ISO WD 10303-226 1998(E)					
1	Code (7.2.1) ¹⁾		6	applicable properties (7.2.10) ¹¹⁾				
2	Super class (7.2.2) ¹¹⁾		7	Definition (7.2.12) ¹¹⁾				
3	Preferred name (7.2.3) ¹¹⁾		8	Version number (7.2.20) ¹¹⁾				
4	Short name (7.2.4) ¹¹⁾		9	Revision number (7.2.21) ¹¹⁾				
5	Visible properties (7.2.9) ¹¹⁾		10	Source document of definition (7.2.13) ¹¹⁾				

Figure M.1 - Component class specification attributes

For a detailed description of the various attributes of the component class definition see ISO-DIS-13584-42:—²⁾.

M.1.7 Property definitions specification attributes

The various attributes of the property definitions contained in Clause M.4 of this annex are explained with the aid of Figure M.1. For a detailed description of the various attributes of the property definitions see ISO DIS 13583-42:—³⁾.

¹⁾ These clauses refer to the clauses in ISO-DIS-13584-42. Other attributes as specified in Clause 7.2 of ISO-DIS-13584-42 may be applicable for other definitions.

²⁾ To be published.

³⁾ To be published.

	1	12	13	11	8	6			
		?			?	?	?	?	?
L1		2304000_PP_003		001		01	?	?	T03
L2	3	????????????	real_measure_type			NR3..3.3ES2		m	
L3	5	????	weight						
L4	4	????	full weight						
L4		?	flooded weight						
L5	7	????	the weight when the component is full of fluid						
L6	9	????	xxxxxxx_PP_002 = specific fluid density (d)						
L7	10	????	fw = (fww - ew) * d + ew						
L7		?	?where fww is the full water weight, d is the specific fluid density (AAxx002)						
L7		?	and ew is the empty weight.						
L8	2	????	23_AA_PCL_0002				14????? ISO*****		
1		Code (6.2.1) ¹⁾				8	Unit (6.2.14) ¹²⁾		
2		Definition Class (6.2.2) ¹²⁾				9	Condition (6.2.15) ¹²⁾		
3		Data type (6.2.3) ¹²⁾				10	Formula (6.2.16) ¹²⁾		
4		Preferred name / synonymous name (6.2.4) ¹²⁾				11	Value format (6.2.17) ¹²⁾		
5		Short name (6.2.5) ¹²⁾				12	Version number (6.2.21) ¹²⁾		
6		Property type classification (6.2.9) ¹⁾				13	Revision number (6.2.21) ¹²⁾		
7		Definition (6.2.10) ¹²⁾				14	Source document of definition (6.2.10) ¹²⁾		

Figure M.2 - Property definition attributes.

M.1.8 Property BSU_code

A property ISO 13584 is identified by an BSU_code. In this dictionary the following structure has been adopted:

"MPP_NNNNNNNNNN"

in which:

- "MPP": is a prefix characterizing a property associated to a mechanical product class object.
- "NNNNNNNNNN": is an extension number used to distinguish the different properties with the same ICS class code.

¹⁾ These clauses refer to the clauses in ISO-DIS-13584-42. Other attributes as specified in Clause 6.2 of ISO-DIS-13584-42 may be applicable for other definitions.

M.2 Class hierarchy

This subclause defines the class tree and lists the properties under each class.

Item	MPC_000000000
<i>item_description</i>	MPP_000000001
<i>item_documentation</i>	MPP_000000002
<i>item_id</i>	MPP_000000003
<i>item_ship_context</i>	MPP_000000004
---mechanical product	MPC_000000001
<i>mechanical_product_documented_definitions</i>	MPP_000000012
<i>mechanical_product_material_code</i>	MPP_000000010
<i>mechanical_product_material_description</i>	MPP_000000011
<i>mechanical_product_material_name</i>	MPP_000000009
<i>mechanical_product_the_function</i>	MPP_000000013
<i>mechanical_product_center_of_gravity</i>	MPP_000000014
<i>mechanical_product_inertia</i>	MPP_000000015
<i>mechanical_product_mass</i>	MPP_000000016
<i>mechanical_product_weight</i>	MPP_000000017
<i>mechanical_product_standard_name</i>	MPP_000000006
<i>mechanical_product_task_in_context</i>	MPP_000000007
<i>mechanical_product_version_id</i>	MPP_000000008
<i>mechanical_product_overall_breadth</i>	MPP_0000000290
<i>mechanical_product_overall_height</i>	MPP_0000000291
<i>mechanical_product_overall_length</i>	MPP_0000000292
<i>mechanical_product_standard_definition</i>	MPP_000000005
---system	MPC_000000012
/ <i>mechanical_system_functionality</i>	MPP_0000000295
---propulsion system	MPC_000000013
/ <i>propulsion_system_type</i>	MPP_0000000307
---mechanical propulsion system	MPC_000000014
---electric propulsion system	MPC_000000015
---manoeuvring system	MPC_000000016
---steam generation system(boiler)	MPC_000000017
/ / <i>type_of_steam_generation_system</i>	MPP_0000000501
---power generation system	MPC_000000018
/ / <i>power_generation_system_type</i>	MPP_0000000296
---diesel-electric plant	MPC_000000019
---shaft-generator system	MPC_000000020
---steam power plant	MPC_000000021
---gas turbine plant	MPC_000000022
---combine cycle plant	MPC_000000023
---auxiliary system	MPC_000000024
---piping system	MPC_000000025
/ / <i>piping_system_type</i>	MPP_0000000296
---ballast system	MPC_000000026
---bilge water system	MPC_000000027
---compressed air system	MPC_000000028
---condensate system	MPC_000000029
---control air system	MPC_000000030
---control oil system	MPC_000000031
---cooling air system	MPC_000000032
---cooling water system	MPC_000000033
---engine room ventilation system	MPC_000000034
---exhaust gas system	MPC_000000035
---feedwater system	MPC_000000036

			<i>piping_component_type</i>	<i>MPP_0000000299</i>
			---pipe	MPC_0000000184
			<i>pipe_type</i>	<i>MPP_0000000603</i>
			---exhaust pipe	MPC_0000000185
			---fuel line	MPC_0000000186
			---duct	MPC_0000000187
			---expansion joint	MPC_0000000188
			---fitting	MPC_0000000189
			---tunnel	MPC_0000000190
			---discharge duct	MPC_0000000191
			---mechanical component	MPC_0000000192
			<i>mechanical_component_type</i>	<i>MPP_0000000278</i>
			---balance weight	MPC_0000000193
			---brake pad	MPC_0000000194
			---connecting rod	MPC_0000000195
			---crankcase	MPC_0000000196
			---crossshear and guide	MPC_0000000197
			---crossshear pin	MPC_0000000198
			---cylinder	MPC_0000000199
			---cylinder liner	MPC_0000000200
			---drive gear	MPC_0000000201
			---exhaust port	MPC_0000000202
			---exhaust valve	MPC_0000000203
			---fuel injector	MPC_0000000204
			---fuel pump gearMPC_0000000205	
			---gland	MPC_0000000206
			---gudgeon pin	MPC_0000000207
			---guide shores	MPC_0000000208
			---guides	MPC_0000000209
			---inlet valve	MPC_0000000210
			---inspection door	MPC_0000000211
			---intake port	MPC_0000000212
			---manifold	MPC_0000000213
			---intake manifold	MPC_0000000214
			---exhaust manifold	MPC_0000000215
			---piston	MPC_0000000216
			<i>piston_type</i>	<i>MPP_0000000305</i>
			---ring	MPC_0000000217
			---tension rod	MPC_0000000218
			---valve cage	MPC_0000000219
			---valve gear	MPC_0000000220
			---web	MPC_0000000221
			---casing	MPC_0000000222
			---bearing element	MPC_0000000223
			---shaft brake	MPC_0000000224
			---fuel pump	MPC_0000000225
			---rudder	MPC_0000000226
			---electrical component	MPC_0000000227
			<i>electrical_component_type</i>	<i>MPP_0000000605</i>
			---plug	MPC_0000000228
			---electric cable	MPC_0000000229
			---wire	MPC_0000000230
			---lifting component	MPC_0000000231
			---block	MPC_0000000232
			---chain	MPC_0000000233
			---lifting cable	MPC_0000000234

					---temperature sensor	MPC_000000280
					---flowrate sensor	MPC_000000281
					---torque sensor	MPC_000000282
					---equipment	MPC_000000002
					<i>equipment_function</i>	MPP_000000020
					<i>equipment_type_of_duty</i>	MPP_000000019
					<i>equipment_name_manufacturer_specific</i>	MPP_000000125
					<i>equipment_name_user_specific</i>	MPP_000000126
					---control equipment	MPC_000000080
					<i>control_equipment_type</i>	MPP_000000211
					---analyser	MPC_000000081
					<i>analyser_type</i>	MPP_000000201
					---signal conditioner	MPC_000000082
					---actuator	MPC_000000083
					<i>actuator_type</i>	MPP_000000581
					---pneumatic actuator	MPC_000000084
					---electric actuator	MPC_000000085
					---hydraulic actuator	MPC_000000086
					---manual actuator	MPC_000000087
					---mechanical equipment	MPC_000000088
					<i>type_of_mechanical_equipment</i>	MPP_000000281
					---gear box	MPC_000000089
					<i>gear_box_type</i>	MPP_000000252
					---shaft coupling	MPC_000000090
					<i>coupling_type</i>	MPP_000000212
					---flexible coupling	MPC_000000091
					---fluid coupling	MPC_000000092
					---solid coupling	MPC_000000093
					---clutch	MPC_000000094
					---pneumatic clutch	MPC_000000095
					---hydraulic clutch	MPC_000000096
					---electro-magnetic clutch	MPC_000000097
					---silencer	MPC_000000098
					---mechanical governor	MPC_000000099
					---damper	MPC_000000100
					<i>damper_type</i>	MPP_000000587
					---viscous damper	MPC_000000101
					---spring-loaded damper	MPC_000000102
					---electrical equipment	MPC_000000103
					<i>type_of_electrical_equipment</i>	MPP_000000245
					---transformer	MPC_000000104
					---switch board	MPC_000000105
					---motor starter	MPC_000000106
					---lifting equipment	MPC_000000107
					<i>lifting_equipment_lifting_capacity</i>	MPP_000000100
					<i>lifting_capacity_nature_of_lifting_operation</i>	MPP_000000101
					<i>lifting_equipment_type</i>	MPP_000000258
					---crane	MPC_000000108
					<i>crane_braking_time</i>	MPP_000000115
					<i>crane_hoisting_speed_1</i>	MPP_000000116
					<i>crane_hoisting_speed_2</i>	MPP_000000117
					<i>crane_hoisting_speed_3</i>	MPP_000000118
					<i>crane_lifting_height</i>	MPP_000000119
					<i>crane_luffing_time</i>	MPP_000000120
					<i>crane_slewing_speed_single</i>	MPP_000000121
					<i>crane_slewing_speed_twin</i>	MPP_000000122

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				<i>crane_overturning_moment</i>	<i>MPP_0000000124</i>
				<i>crane_stability_moment</i>	<i>MPP_0000000123</i>
				<i>crane_jib_parking_arrangements</i>	<i>MPP_0000000113</i>
				<i>crane_forces_due_to_wind</i>	<i>MPP_0000000106</i>
				<i>crane_forces_dynamic</i>	<i>MPP_0000000107</i>
				<i>crane_forces_ship_inclination</i>	<i>MPP_0000000108</i>
				<i>crane_loads_dead</i>	<i>MPP_0000000109</i>
				<i>crane_loads_live</i>	<i>MPP_0000000110</i>
				<i>crane_loads_on_platform</i>	<i>MPP_0000000111</i>
				<i>crane_loads_snow_and_ice</i>	<i>MPP_0000000112</i>
				<i>crane_jib_angle_max</i>	<i>MPP_0000000102</i>
				<i>crane_jib_angle_min</i>	<i>MPP_0000000103</i>
				<i>crane_jib_radius_max</i>	<i>MPP_0000000104</i>
				<i>crane_jib_radius_min</i>	<i>MPP_0000000105</i>
				<i>crane_type</i>	<i>MPP_0000000213</i>
				<i>crane_ambient-condition_wind_speed</i>	<i>MPP_0000000215</i>
				---deck_crane	<i>MPC_0000000109</i>
				---derrick	<i>MPC_0000000110</i>
				---winch	<i>MPC_0000000111</i>
				---machinery	<i>MPC_0000000003</i>
				<i>machinery_design_point_description</i>	<i>MPP_0000000023</i>
				<i>machinery_design_efficiency</i>	<i>MPP_0000000024</i>
				<i>machinery_design_power</i>	<i>MPP_0000000025</i>
				<i>machinery_overload_characteristics</i>	<i>MPP_0000000026</i>
				<i>machinery_power_maximum</i>	<i>MPP_0000000029</i>
				<i>machinery_rotational_speed_maximum</i>	<i>MPP_0000000027</i>
				<i>machinery_rotational_speed_minimum</i>	<i>MPP_0000000028</i>
				<i>machinery_direction_of_rotation</i>	<i>MPP_0000000030</i>
				<i>machinery_lube_oil_system_type</i>	<i>MPP_0000000031</i>
				<i>machinery_accumulated_revolution_counter</i>	<i>MPP_0000000032</i>
				<i>machinery_accumulated_shaft_energy</i>	<i>MPP_0000000033</i>
				<i>machinery_ambient_pressure_maximum</i>	<i>MPP_0000000267</i>
				<i>machinery_ambient_pressure_minimum</i>	<i>MPP_0000000268</i>
				<i>machinery_ambient_temperature_maximum</i>	<i>MPP_0000000269</i>
				<i>machinery_ambient_temperature_minimum</i>	<i>MPP_0000000270</i>
				<i>machinery_type</i>	<i>MPP_0000000265</i>
				<i>machinery_operating_point_description</i>	<i>MPP_0000000271</i>
				<i>machinery_operating_efficiency</i>	<i>MPP_0000000272</i>
				<i>machinery_operating_power</i>	<i>MPP_0000000273</i>
				<i>machinery_design_rotational_speed</i>	<i>MPP_0000000274</i>
				<i>machinery_operating_rotational_speed</i>	<i>MPP_0000000277</i>
				---mechanical machinery	<i>MPC_0000000004</i>
				<i>mechanical_machinery_type</i>	<i>MPP_0000000285</i>
				---reciprocating machinery	<i>MPC_0000000005</i>
				<i>reciprocating_machinery_cylinder_cooling_method</i>	<i>MPP_0000000034</i>
				<i>reciprocating_machinery_compression_ratio</i>	<i>MPP_0000000037</i>
				<i>reciprocating_machinery_cylinder_bore</i>	<i>MPP_0000000036</i>
				<i>reciprocating_machinery_piston_stroke</i>	<i>MPP_0000000035</i>
				<i>reciprocating_machinery_type</i>	<i>MPP_0000000309</i>
				<i>reciprocating_machinery_no_of_cylinders</i>	<i>MPP_0000000310</i>
				---diesel engine	<i>MPC_0000000006</i>
				<i>diesel_engine_piston_speed</i>	<i>MPP_0000000068</i>
				<i>diesel_engine_charge_cooler_arrangement</i>	<i>MPP_0000000053</i>
				<i>diesel_engine_cylinder_configuration</i>	<i>MPP_0000000054</i>
				<i>diesel_engine_cycle</i>	<i>MPP_0000000055</i>
				<i>diesel_engine_firing_angle</i>	<i>MPP_0000000056</i>

					<i>diesel_engine_firing_interval</i>	MPP_0000000057
					<i>diesel_engine_firing_order</i>	MPP_0000000058
					<i>diesel_engine_fuel_injection_system_type</i>	MPP_0000000059
					<i>diesel_engine_fuel_oil_system_type</i>	MPP_0000000060
					<i>diesel_engine_fuel_type</i>	MPP_0000000061
					<i>diesel_engine_piston_guide_type</i>	MPP_0000000062
					<i>diesel_engine_pressure_charging_system</i>	MPP_0000000063
					<i>diesel_engine_reversibility</i>	MPP_0000000064
					<i>diesel_engine_starting_system_method</i>	MPP_0000000065
					<i>diesel_engine_turbocharger_type</i>	MPP_0000000066
					<i>diesel_engine_vee_angle</i>	MPP_0000000067
					<i>diesel_engine_brake_mean_effective_pressure</i>	MPP_0000000038
					<i>diesel_engine_brake_power</i>	MPP_0000000039
					<i>diesel_engine_brake_specific_fuel_consumption</i>	MPP_0000000041
					<i>diesel_engine_brake_torque</i>	MPP_0000000040
					<i>diesel_engine_cooling_water_flow_rate</i>	MPP_0000000042
					<i>diesel_engine_cooling_water_fluid_pressure</i>	MPP_0000000043
					<i>diesel_engine_cooling_water_fluid_temperature</i>	MPP_0000000044
					<i>diesel_engine_exhaust_nitrogen_oxide</i>	MPP_0000000045
					<i>diesel_engine_exhaust_particulates</i>	MPP_0000000046
					<i>diesel_engine_exhaust_smoke</i>	MPP_0000000047
					<i>diesel_engine_exhaust_sulphur_oxides</i>	MPP_0000000048
					<i>diesel_engine_exhaust_unburnt_hydrocarbons</i>	MPP_0000000049
					<i>diesel_engine_indicated_mean_effective_pressure</i>	MPP_0000000050
					<i>diesel_engine_maximum_cylinder_pressure</i>	MPP_0000000051
					<i>diesel_engine_shaft_revolution_counter</i>	MPP_0000000052
					<i>diesel_engine_lube_oil_flowrate</i>	MPP_0000000240
					<i>diesel_engine_lube_oil_fluid_pressure</i>	MPP_0000000241
					<i>diesel_engine_lube_oil_fluid_temperature</i>	MPP_0000000242
					---spark ignition engine	MPC_0000000007
					---reciprocating compressor	MPC_0000000008
					---reciprocating pump	MPC_0000000009
					---fuel injection pump	MPC_0000000010
					---steam engine	MPC_0000000011
					---rotating machinery	MPC_0000000012
					<i>rotating_machinery_type</i>	MPP_0000000220
					---pump propulsor	MPC_0000000013
					---screw propeller	MPC_0000000014
					<i>screw_propeller_max_ahead_pitch</i>	MPP_0000000075
					<i>screw_propeller_max_astern_pitch</i>	MPP_0000000076
					<i>screw_propeller_fit_of_hub_to_shaft</i>	MPP_0000000086
					<i>screw_propeller_hub_type</i>	MPP_0000000085
						MPP_0000000084
					<i>screw_propeller_pitch_control_mechanism_description</i>	
					<i>screw_propeller_type_by_blade_outline</i>	MPP_0000000083
					<i>screw_propeller_type_by_design_configuration</i>	MPP_0000000082
					<i>screw_propeller_type_by_duct</i>	MPP_0000000081
					<i>screw_propeller_type_of_pitch</i>	MPP_0000000080
					<i>screw_propeller_type_of_construction</i>	MPP_0000000079
						MPP_0000000088
					<i>screw_propeller_entrained_water_method_of_calculation</i>	
					<i>screw_propeller_inertia_in_water</i>	MPP_0000000089
					<i>screw_propeller_weight_including_water</i>	MPP_0000000090
/					<i>screw_propeller_immersion_in_ballast_condition</i>	MPP_0000000078
					<i>screw_propeller_immersion_in_loaded_condition</i>	MPP_0000000077
					<i>screw_propeller_opearing_rotational_speed</i>	MPP_0000000099

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					<i>screw_propeller_design_pitch</i>	MPP_0000000069
					<i>screw_propeller_blade_area_ratio_expanded</i>	MPP_0000000091
					<i>screw_propeller_blade_thickness_at_centerline</i>	MPP_0000000092
					<i>screw_propeller_diameter</i>	MPP_0000000093
					<i>screw_propeller_hub_to_diameter_ratio</i>	MPP_0000000094
					<i>screw_propeller_mean_pitch_diameter_ratio</i>	MPP_0000000095
						MPP_0000000096
					<i>screw_propeller_nominal_design_pitch_diameter_ratio</i>	
					<i>screw_propeller_rake_angle</i>	MPP_0000000097
					<i>screw_propeller_shaft_height</i>	MPP_0000000098
					<i>screw_propeller_skew_angle</i>	MPP_0000000087
					<i>screw_propeller_tip_clearnce_to_hull</i>	MPP_0000000074
					<i>screw_propeller_type</i>	MPP_0000000330
					<i>screw_propeller_design_rotational_speed</i>	MPP_0000000350
					<i>screw_propeller_design_power</i>	MPP_0000000343
					<i>screw_propeller_design_point_description</i>	MPP_0000000341
					<i>screw_propeller_design_efficiency</i>	MPP_0000000340
					<i>screw_propeller_number_of_blades</i>	MPP_0000000333
					---cycloidal propeller	MPC_0000000015
					---steam turbine	MPC_0000000016
					---gas turbine	MPC_0000000017
					---rotary compressor	MPC_0000000018
					---fan	MPC_0000000019
					---turbocharger	MPC_0000000020
					---supercharger	MPC_0000000021
					---power turbine	MPC_0000000022
					---azimuth propulsor	MPC_0000000023
					---rotary pump	MPC_0000000024
					---electrical machinery	MPC_0000000025
					<i>electrical_machinery_type</i>	MPP_0000000525
					---electric motor	MPC_0000000026
					---electric generator	MPC_0000000027
					---process machinery	MPC_0000000028
					<i>process_machinery_type</i>	MPP_0000000575
					---agitator	MPC_0000000029
					---centrifuge	MPC_0000000030
					---separator	MPC_0000000031
					---purifier	MPC_0000000032
					---homogeniser	MPC_0000000033
					---clarifier	MPC_0000000034
					---process equipment	MPC_0000000035
					<i>process_equipment_type</i>	MPP_0000000304
					---filter	MPC_0000000036
					<i>filter_type</i>	MPP_0000000576
					---air filter	MPC_0000000037
					---fuel filter	MPC_0000000038
					---lube oil filter	MPC_0000000039
					---heat exchanger	MPC_0000000040
					<i>heat_exchanger_role</i>	MPP_0000000255
					<i>heat_exchanger_type</i>	MPP_0000000256
					---air cooler	MPC_0000000041
					---air heater	MPC_0000000042
					---economiser	MPC_0000000043
					---fuel preheater	MPC_0000000044
					---oil cooler	MPC_0000000045
					---oil heater	MPC_0000000046

					---recuperator	MPC_000000047
					---regenerator	MPC_000000048
					---water cooler	MPC_000000049
					---water heater	MPC_000000050
					---condenser	MPC_000000051
					---De-aerator	MPC_000000052
					---De-oiler	MPC_000000053
					---ejector	MPC_000000054
					---piping equipment	MPC_000000055
					<i>piping_equipment_type</i>	<i>MPP_000000300</i>
					---pressure vessel	MPC_000000071
					---tank	MPC_000000072
					<i>tank_type</i>	<i>MPP_000000578</i>
					---fuel tank	MPC_000000073
					---lube oil tank	MPC_000000074
					---fresh water tank	MPC_000000075
					---hydraulic oil tank	MPC_000000076
					---thermal oil tank	MPC_000000077
					---sludge tank	MPC_000000078
					---sewage tank	MPC_000000079
					---valve	MPC_000000056
					<i>valve_type</i>	<i>MPP_000000555</i>
					---gate valve	MPC_000000057
					---diaphragm valve	MPC_000000058
					---globe valve	MPC_000000059
					---plug valve	MPC_000000060
					---ball valve	MPC_000000061
					---butterfly valve	MPC_000000062
					---check valve	MPC_000000063
					---safety valve	MPC_000000064
					---pressure control valve	MPC_000000065
					---soleroid valve	MPC_000000066
					---ball float valve	MPC_000000067
					---poppet valve	MPC_000000068
					---relief valve	MPC_000000069
					---dish valve	MPC_000000070

M.3 Component classes definition

MPC_000000056	001	001	MPC_000000055
valve		valve	
a piping equipment that is used for controlling fluid flow through the piping system			
MPP_000000555	valve_type		
MPP_000000300	piping_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000053	001	001	MPC_000000035
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De-oiler

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000304	process_equipment_type
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000052	001	001	MPC_000000035
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De-aerator

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000304	process_equipment_type
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description

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MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000051 001 001 MPC_000000035

condenser
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000050 001 001 MPC_000000040

water heater
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000255 heat_exchanger_role
MPP_000000256 heat_exchanger_type
MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description

MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000049	001	001	MPC_000000040
water cooler			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000048	001	001	MPC_000000040
regenerator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		

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MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000047 001 001 MPC_000000040

recuperator
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000255 heat_exchanger_role
MPP_000000256 heat_exchanger_type
MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000046 001 001 MPC_000000040

oil heater
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000255 heat_exchanger_role
MPP_000000256 heat_exchanger_type
MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description

MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000045	001	001	MPC_000000040
oil cooler			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000044	001	001	MPC_000000040
fuel preheater			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		

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MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_0000000043	001	001	MPC_0000000040
economiser			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_0000000042	001	001	MPC_0000000040
air heater			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		

MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000041	001	001	MPC_000000040
air cooler			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000040	001	001	MPC_000000035
heat exchanger		heat exchanger	
process equipment that is used to exchange heat energy			
MPP_000000255	heat_exchanger_role		
MPP_000000256	heat_exchanger_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		

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MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000039 001 001 MPC_0000000036
lube oil filter
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000576 filter_type
MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000038 001 001 MPC_0000000036
fuel filter
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000576 filter_type
MPP_000000304 process_equipment_type
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition

MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000037	001	001	MPC_000000036
air filter			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000576	filter_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000036	001	001	MPC_000000035
filter			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000576	filter_type		
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		

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MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000035	001	001	MPC_000000002
process equipment		process equipment	
an equipment that is primarily used in a process plant for carrying out certain processes			
MPP_000000304	process_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000034	001	001	MPC_000000028
clarifier			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000575	process_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		

MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000033	001	001	MPC_000000028
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homogeniser

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000575	process_machinery_type
MPP_000000023	machinery_design_point_description
MPP_000000024	machinery_design_efficiency
MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description

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MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000032 001 001 MPC_000000028

purifier
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000575 process_machinery_type
MPP_000000023 machinery_design_point_description
MPP_000000024 machinery_design_efficiency
MPP_000000025 machinery_design_power
MPP_000000026 machinery_overload_characteristics
MPP_000000029 machinery_power_maximum
MPP_000000027 machinery_rotational_speed_maximum
MPP_000000028 machinery_rotational_speed_minimum
MPP_000000030 machinery_direction_of_rotation
MPP_000000031 machinery_lube_oil_system_type
MPP_000000032 machinery_accumulated_revolution_counter
MPP_000000033 machinery_accumulated_shaft_energy
MPP_000000267 machinery_ambient_pressure_maximum
MPP_000000268 machinery_ambient_pressure_minimum
MPP_000000269 machinery_ambient_temperature_maximum
MPP_000000270 machinery_ambient_temperature_minimum
MPP_000000265 machinery_type
MPP_000000271 machinery_operating_point_description
MPP_000000272 machinery_operating_efficiency
MPP_000000273 machinery_operating_power
MPP_000000274 machinery_design_rotational_speed
MPP_000000277 machinery_operating_rotational_speed
MPP_000000020 equipment_function
MPP_000000019 equipment_type_of_duty
MPP_000000125 equipment_name_manufacturer_specific
MPP_000000126 equipment_name_user_specific
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000031 001 001 MPC_000000028

separator
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000575 process_machinery_type
MPP_000000023 machinery_design_point_description
MPP_000000024 machinery_design_efficiency
MPP_000000025 machinery_design_power
MPP_000000026 machinery_overload_characteristics

MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000030	001	001	MPC_000000028
centrifuge			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000575	process_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		

MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000029	001	001	MPC_0000000028
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agitator
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000575	process_machinery_type
MPP_0000000023	machinery_design_point_description
MPP_0000000024	machinery_design_efficiency
MPP_0000000025	machinery_design_power
MPP_0000000026	machinery_overload_characteristics
MPP_0000000029	machinery_power_maximum
MPP_0000000027	machinery_rotational_speed_maximum
MPP_0000000028	machinery_rotational_speed_minimum
MPP_0000000030	machinery_direction_of_rotation
MPP_0000000031	machinery_lube_oil_system_type
MPP_0000000032	machinery_accumulated_revolution_counter
MPP_0000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context

MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000028	001	001	MPC_0000000003
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process machinery
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000575	process_machinery_type
MPP_0000000023	machinery_design_point_description
MPP_0000000024	machinery_design_efficiency
MPP_0000000025	machinery_design_power
MPP_0000000026	machinery_overload_characteristics
MPP_0000000029	machinery_power_maximum
MPP_0000000027	machinery_rotational_speed_maximum
MPP_0000000028	machinery_rotational_speed_minimum
MPP_0000000030	machinery_direction_of_rotation
MPP_0000000031	machinery_lube_oil_system_type
MPP_0000000032	machinery_accumulated_revolution_counter
MPP_0000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000027	001	001	MPC_000000025
electric generator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000525	electrical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000026	001	001	MPC_000000025
electric motor			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000525	electrical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		

MPP_000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_00000000290	mechanical_product_overall_breadth
MPP_00000000291	mechanical_product_overall_height
MPP_00000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000025	001	001	MPC_0000000003
electrical machinery		electrical machinery	
an electrical equipment with function as machinery			
MPP_0000000525	electrical_machinery_type		
MPP_0000000023	machinery_design_point_description		
MPP_0000000024	machinery_design_efficiency		
MPP_0000000025	machinery_design_power		
MPP_0000000026	machinery_overload_characteristics		
MPP_0000000029	machinery_power_maximum		
MPP_0000000027	machinery_rotational_speed_maximum		
MPP_0000000028	machinery_rotational_speed_minimum		
MPP_0000000030	machinery_direction_of_rotation		
MPP_0000000031	machinery_lube_oil_system_type		
MPP_0000000032	machinery_accumulated_revolution_counter		
MPP_0000000033	machinery_accumulated_shaft_energy		
MPP_0000000267	machinery_ambient_pressure_maximum		
MPP_0000000268	machinery_ambient_pressure_minimum		
MPP_0000000269	machinery_ambient_temperature_maximum		
MPP_0000000270	machinery_ambient_temperature_minimum		
MPP_0000000265	machinery_type		
MPP_0000000271	machinery_operating_point_description		
MPP_0000000272	machinery_operating_efficiency		
MPP_0000000273	machinery_operating_power		
MPP_0000000274	machinery_design_rotational_speed		
MPP_0000000277	machinery_operating_rotational_speed		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		

MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000024	001	001	MPC_000000012
rotary pump			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		

MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000023	001	001	MPC_000000012
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azimuth propulsor
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000020	rotating_machinery_type
MPP_000000285	mechanical_machinery_type
MPP_000000023	machinery_design_point_description
MPP_000000024	machinery_design_efficiency
MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000022	001	001	MPC_000000012
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power turbine
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000020	rotating_machinery_type
MPP_000000285	mechanical_machinery_type
MPP_000000023	machinery_design_point_description

MPP_000000024	machinery_design_efficiency
MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000021	001	001	MPC_000000012
supercharger			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		

MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000020	001	001	MPC_000000012
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turbocharger

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000220	rotating_machinery_type
MPP_000000285	mechanical_machinery_type
MPP_000000023	machinery_design_point_description
MPP_000000024	machinery_design_efficiency
MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity

MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000018	001	001	MPC_000000012
rotary compressor			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000017	001	001	MPC_000000012
gas turbine			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		

MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000016	001	001	MPC_000000012
steam turbine			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		

MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000015	001	001	MPC_000000012
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cycloidal propeller
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000220	rotating_machinery_type
MPP_000000285	mechanical_machinery_type
MPP_000000023	machinery_design_point_description
MPP_000000024	machinery_design_efficiency
MPP_000000025	machinery_design_power
MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia

MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000014	001	001	MPC_000000012
screw propeller		screw propeller	
a rotating machinery that has a revolving boss with blades that are usually set at an angle and twisted like the threads of the screw			
MPP_000000075	screw_propeller_max_ahead_pitch		
MPP_000000076	screw_propeller_max_astern_pitch		
MPP_000000086	screw_propeller_fit_of_hub_to_shaft		
MPP_000000085	screw_propeller_hub_type		
MPP_000000084	screw_propeller_pitch_control_mechanism_description		
MPP_000000083	screw_propeller_type_by_blade_outline		
MPP_000000082	screw_propeller_type_by_design_configuration		
MPP_000000081	screw_propeller_type_by_duct		
MPP_000000080	screw_propeller_type_of_pitch		
MPP_000000079	screw_propeller_type_of_construction		
MPP_000000088	screw_propeller_entrained_water_method_of_calculation		
MPP_000000089	screw_propeller_inertia_in_water		
MPP_000000090	screw_propeller_weight_including_water		
MPP_000000078	screw_propeller_immersion_in_ballast_condition		
MPP_000000077	screw_propeller_immersion_in_loaded_condition		
MPP_000000099	screw_propeller_operating_rotational_speed		
MPP_000000069	screw_propeller_design_pitch		
MPP_000000091	screw_propeller_blade_area_ratio_expanded		
MPP_000000092	screw_propeller_blade_thickness_at_centerline		
MPP_000000093	screw_propeller_diameter		
MPP_000000094	screw_propeller_hub_to_diameter_ratio		
MPP_000000095	screw_propeller_mean_pitch_diameter_ratio		
MPP_000000096	screw_propeller_nominal_design_pitch_diameter_ratio		
MPP_000000097	screw_propeller_rake_angle		
MPP_000000098	screw_propeller_shaft_height		
MPP_000000087	screw_propeller_skew_angle		
MPP_000000074	screw_propeller_tip_clearance_to_hull		
MPP_000000330	screw_propeller_type		
MPP_000000350	screw_propeller_design_rotational_speed		
MPP_000000343	screw_propeller_design_power		
MPP_000000341	screw_propeller_design_point_description		
MPP_000000340	screw_propeller_design_efficiency		
MPP_000000333	screw_propeller_number_of_blades		
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		

MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000013	001	001	MPC_000000012
pump propulsor			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000012	001	001	MPC_000000004
rotating machinery		rotating machinery	
a machinery that works according to rotating motion			
MPP_000000220	rotating_machinery_type		
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		

MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000011	001	001	MPC_000000005
steam engine			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000034	reciprocating_machinery_cylinder_cooling_method		
MPP_000000037	reciprocating_machinery_compression_ratio		
MPP_000000036	reciprocating_machinery_cylinder_bore		
MPP_000000035	reciprocating_machinery_piston_stroke		
MPP_0000000309	reciprocating_machinery_type		
MPP_0000000310	reciprocating_machinery_no_of_cylinders		
MPP_0000000285	mechanical_machinery_type		
MPP_0000000023	machinery_design_point_description		
MPP_0000000024	machinery_design_efficiency		
MPP_0000000025	machinery_design_power		
MPP_0000000026	machinery_overload_characteristics		
MPP_0000000029	machinery_power_maximum		
MPP_0000000027	machinery_rotational_speed_maximum		
MPP_0000000028	machinery_rotational_speed_minimum		
MPP_0000000030	machinery_direction_of_rotation		
MPP_0000000031	machinery_lube_oil_system_type		
MPP_0000000032	machinery_accumulated_revolution_counter		
MPP_0000000033	machinery_accumulated_shaft_energy		
MPP_0000000267	machinery_ambient_pressure_maximum		
MPP_0000000268	machinery_ambient_pressure_minimum		
MPP_0000000269	machinery_ambient_temperature_maximum		
MPP_0000000270	machinery_ambient_temperature_minimum		
MPP_0000000265	machinery_type		
MPP_0000000271	machinery_operating_point_description		
MPP_0000000272	machinery_operating_efficiency		
MPP_0000000273	machinery_operating_power		
MPP_0000000274	machinery_design_rotational_speed		
MPP_0000000277	machinery_operating_rotational_speed		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000010	001	001	MPC_000000005
fuel injection pump			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000034	reciprocating_machinery_cylinder_cooling_method
MPP_000000037	reciprocating_machinery_compression_ratio
MPP_000000036	reciprocating_machinery_cylinder_bore
MPP_000000035	reciprocating_machinery_piston_stroke
MPP_0000000309	reciprocating_machinery_type
MPP_0000000310	reciprocating_machinery_no_of_cylinders
MPP_0000000285	mechanical_machinery_type
MPP_0000000023	machinery_design_point_description
MPP_0000000024	machinery_design_efficiency
MPP_0000000025	machinery_design_power
MPP_0000000026	machinery_overload_characteristics
MPP_0000000029	machinery_power_maximum
MPP_0000000027	machinery_rotational_speed_maximum
MPP_0000000028	machinery_rotational_speed_minimum
MPP_0000000030	machinery_direction_of_rotation
MPP_0000000031	machinery_lube_oil_system_type
MPP_0000000032	machinery_accumulated_revolution_counter
MPP_0000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000009	001	001	MPC_000000005
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reciprocating pump
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000034	reciprocating_machinery_cylinder_cooling_method
MPP_000000037	reciprocating_machinery_compression_ratio
MPP_000000036	reciprocating_machinery_cylinder_bore
MPP_000000035	reciprocating_machinery_piston_stroke
MPP_0000000309	reciprocating_machinery_type
MPP_0000000310	reciprocating_machinery_no_of_cylinders
MPP_0000000285	mechanical_machinery_type
MPP_0000000023	machinery_design_point_description
MPP_0000000024	machinery_design_efficiency
MPP_0000000025	machinery_design_power

MPP_000000026	machinery_overload_characteristics
MPP_000000029	machinery_power_maximum
MPP_000000027	machinery_rotational_speed_maximum
MPP_000000028	machinery_rotational_speed_minimum
MPP_000000030	machinery_direction_of_rotation
MPP_000000031	machinery_lube_oil_system_type
MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000008	001	001	MPC_0000000005
reciprocating compressor			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000034	reciprocating_machinery_cylinder_cooling_method		
MPP_0000000037	reciprocating_machinery_compression_ratio		
MPP_0000000036	reciprocating_machinery_cylinder_bore		
MPP_0000000035	reciprocating_machinery_piston_stroke		
MPP_0000000309	reciprocating_machinery_type		
MPP_0000000310	reciprocating_machinery_no_of_cylinders		
MPP_0000000285	mechanical_machinery_type		
MPP_0000000023	machinery_design_point_description		
MPP_0000000024	machinery_design_efficiency		
MPP_0000000025	machinery_design_power		
MPP_0000000026	machinery_overload_characteristics		
MPP_0000000029	machinery_power_maximum		
MPP_0000000027	machinery_rotational_speed_maximum		
MPP_0000000028	machinery_rotational_speed_minimum		
MPP_0000000030	machinery_direction_of_rotation		
MPP_0000000031	machinery_lube_oil_system_type		
MPP_0000000032	machinery_accumulated_revolution_counter		
MPP_0000000033	machinery_accumulated_shaft_energy		
MPP_0000000267	machinery_ambient_pressure_maximum		
MPP_0000000268	machinery_ambient_pressure_minimum		

MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000007	001	001	MPC_0000000005
spark ignition engine			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000034	reciprocating_machinery_cylinder_cooling_method		
MPP_0000000037	reciprocating_machinery_compression_ratio		
MPP_0000000036	reciprocating_machinery_cylinder_bore		
MPP_0000000035	reciprocating_machinery_piston_stroke		
MPP_0000000309	reciprocating_machinery_type		
MPP_0000000310	reciprocating_machinery_no_of_cylinders		
MPP_0000000285	mechanical_machinery_type		
MPP_0000000023	machinery_design_point_description		
MPP_0000000024	machinery_design_efficiency		
MPP_0000000025	machinery_design_power		
MPP_0000000026	machinery_overload_characteristics		
MPP_0000000029	machinery_power_maximum		
MPP_0000000027	machinery_rotational_speed_maximum		
MPP_0000000028	machinery_rotational_speed_minimum		
MPP_0000000030	machinery_direction_of_rotation		
MPP_0000000031	machinery_lube_oil_system_type		
MPP_0000000032	machinery_accumulated_revolution_counter		
MPP_0000000033	machinery_accumulated_shaft_energy		
MPP_0000000267	machinery_ambient_pressure_maximum		
MPP_0000000268	machinery_ambient_pressure_minimum		
MPP_0000000269	machinery_ambient_temperature_maximum		
MPP_0000000270	machinery_ambient_temperature_minimum		
MPP_0000000265	machinery_type		
MPP_0000000271	machinery_operating_point_description		
MPP_0000000272	machinery_operating_efficiency		
MPP_0000000273	machinery_operating_power		
MPP_0000000274	machinery_design_rotational_speed		
MPP_0000000277	machinery_operating_rotational_speed		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		

MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000006	001	001	MPC_000000005
diesel engine			
a reciprocating machinery operating on the compression ignition and internal combustion principles and used as a prime mover			
MPP_000000068	diesel_engine_piston_speed		
MPP_000000053	diesel_engine_charge_cooler_arrangement		
MPP_000000054	diesel_engine_cylinder_configuration		
MPP_000000055	diesel_engine_cycle		
MPP_000000056	diesel_engine_firing_angle		
MPP_000000057	diesel_engine_firing_interval		
MPP_000000058	diesel_engine_firing_order		
MPP_000000059	diesel_engine_fuel_injection_system_type		
MPP_000000060	diesel_engine_fuel_oil_system_type		
MPP_000000061	diesel_engine_fuel_type		
MPP_000000062	diesel_engine_piston_guide_type		
MPP_000000063	diesel_engine_pressure_charging_system		
MPP_000000064	diesel_engine_reversibility		
MPP_000000065	diesel_engine_starting_system_method		
MPP_000000066	diesel_engine_turbocharger_type		
MPP_000000067	diesel_engine_vee_angle		
MPP_000000038	diesel_engine_brake_mean_effective_pressure		
MPP_000000039	diesel_engine_brake_power		
MPP_000000041	diesel_engine_brake_specific_fuel_consumption		
MPP_000000040	diesel_engine_brake_torque		
MPP_000000042	diesel_engine_cooling_water_flow_rate		
MPP_000000043	diesel_engine_cooling_water_fluid_pressure		
MPP_000000044	diesel_engine_cooling_water_fluid_temperature		
MPP_000000045	diesel_engine_exhaust_nitrogen_oxide		
MPP_000000046	diesel_engine_exhaust_particulates		
MPP_000000047	diesel_engine_exhaust_smoke		
MPP_000000048	diesel_engine_exhaust_sulphur_oxides		
MPP_000000049	diesel_engine_exhaust_unburnt_hydrocarbons		
MPP_000000050	diesel_engine_indicated_mean_effective_pressure		
MPP_000000051	diesel_engine_maximum_cylinder_pressure		
MPP_000000052	diesel_engine_shaft_revolution_counter		
MPP_000000240	diesel_engine_lube_oil_flowrate		
MPP_000000241	diesel_engine_lube_oil_fluid_pressure		
MPP_000000242	diesel_engine_lube_oil_fluid_temperature		
MPP_000000034	reciprocating_machinery_cylinder_cooling_method		
MPP_000000037	reciprocating_machinery_compression_ratio		
MPP_000000036	reciprocating_machinery_cylinder_bore		
MPP_000000035	reciprocating_machinery_piston_stroke		
MPP_000000309	reciprocating_machinery_type		
MPP_000000310	reciprocating_machinery_no_of_cylinders		

MPP_0000000285	mechanical_machinery_type
MPP_0000000023	machinery_design_point_description
MPP_0000000024	machinery_design_efficiency
MPP_0000000025	machinery_design_power
MPP_0000000026	machinery_overload_characteristics
MPP_0000000029	machinery_power_maximum
MPP_0000000027	machinery_rotational_speed_maximum
MPP_0000000028	machinery_rotational_speed_minimum
MPP_0000000030	machinery_direction_of_rotation
MPP_0000000031	machinery_lube_oil_system_type
MPP_0000000032	machinery_accumulated_revolution_counter
MPP_0000000033	machinery_accumulated_shaft_energy
MPP_0000000267	machinery_ambient_pressure_maximum
MPP_0000000268	machinery_ambient_pressure_minimum
MPP_0000000269	machinery_ambient_temperature_maximum
MPP_0000000270	machinery_ambient_temperature_minimum
MPP_0000000265	machinery_type
MPP_0000000271	machinery_operating_point_description
MPP_0000000272	machinery_operating_efficiency
MPP_0000000273	machinery_operating_power
MPP_0000000274	machinery_design_rotational_speed
MPP_0000000277	machinery_operating_rotational_speed
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000005	001	001	MPC_0000000004
reciprocating machinery		reciprocating machinery	
a machinery that works according to reciprocating motion			
MPP_0000000034	reciprocating_machinery_cylinder_cooling_method		
MPP_0000000037	reciprocating_machinery_compression_ratio		
MPP_0000000036	reciprocating_machinery_cylinder_bore		
MPP_0000000035	reciprocating_machinery_piston_stroke		
MPP_0000000309	reciprocating_machinery_type		
MPP_0000000310	reciprocating_machinery_no_of_cylinders		
MPP_0000000285	mechanical_machinery_type		
MPP_0000000023	machinery_design_point_description		
MPP_0000000024	machinery_design_efficiency		
MPP_0000000025	machinery_design_power		
MPP_0000000026	machinery_overload_characteristics		
MPP_0000000029	machinery_power_maximum		
MPP_0000000027	machinery_rotational_speed_maximum		
MPP_0000000028	machinery_rotational_speed_minimum		
MPP_0000000030	machinery_direction_of_rotation		
MPP_0000000031	machinery_lube_oil_system_type		

MPP_000000032	machinery_accumulated_revolution_counter
MPP_000000033	machinery_accumulated_shaft_energy
MPP_000000267	machinery_ambient_pressure_maximum
MPP_000000268	machinery_ambient_pressure_minimum
MPP_000000269	machinery_ambient_temperature_maximum
MPP_000000270	machinery_ambient_temperature_minimum
MPP_000000265	machinery_type
MPP_000000271	machinery_operating_point_description
MPP_000000272	machinery_operating_efficiency
MPP_000000273	machinery_operating_power
MPP_000000274	machinery_design_rotational_speed
MPP_000000277	machinery_operating_rotational_speed
MPP_000000020	equipment_function
MPP_000000019	equipment_type_of_duty
MPP_000000125	equipment_name_manufacturer_specific
MPP_000000126	equipment_name_user_specific
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000004	001	001	MPC_000000003
mechanical machinery		mechanical machinery	
a machinery that is primarily used in mechanical systems			
MPP_000000285	mechanical_machinery_type		
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		

MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000003	001	001	MPC_000000002
machinery		machinery	
a reciprocating or rotating equipment that performs some sort of energy conversion as its underlying function			
MPP_000000023	machinery_design_point_description		
MPP_000000024	machinery_design_efficiency		
MPP_000000025	machinery_design_power		
MPP_000000026	machinery_overload_characteristics		
MPP_000000029	machinery_power_maximum		
MPP_000000027	machinery_rotational_speed_maximum		
MPP_000000028	machinery_rotational_speed_minimum		
MPP_000000030	machinery_direction_of_rotation		
MPP_000000031	machinery_lube_oil_system_type		
MPP_000000032	machinery_accumulated_revolution_counter		
MPP_000000033	machinery_accumulated_shaft_energy		
MPP_000000267	machinery_ambient_pressure_maximum		
MPP_000000268	machinery_ambient_pressure_minimum		
MPP_000000269	machinery_ambient_temperature_maximum		
MPP_000000270	machinery_ambient_temperature_minimum		
MPP_000000265	machinery_type		
MPP_000000271	machinery_operating_point_description		
MPP_000000272	machinery_operating_efficiency		
MPP_000000273	machinery_operating_power		
MPP_000000274	machinery_design_rotational_speed		
MPP_000000277	machinery_operating_rotational_speed		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		

MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000002	001	001	MPC_000000001
equipment			
a mechanical product that carries out a generally self contained function and to a large extent may be treated as a single mechanical product for the purpose of design, acquisition, or operation			
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_00000000290	mechanical_product_overall_breadth		
MPP_00000000291	mechanical_product_overall_height		
MPP_00000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000001	001	001	MPC_000000000
mechanical product			
any item of the ship mechanical system that is realisable as a physical thing			
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_00000000290	mechanical_product_overall_breadth		
MPP_00000000291	mechanical_product_overall_height		
MPP_00000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000000	001	001	
item			
			any part, component, subsystem, functional unit, equipment or system of a ship that can be individually considered
MPP_000000001			item_description
MPP_000000002			item_documentation
MPP_000000003			item_id
MPP_000000004			item_ship_context

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MPC_000000282	001	001	MPC_000000278
torque sensor			
MPP_000000288			part_of_mechanical_product_component
MPP_000000012			mechanical_product_documented_definitions
MPP_000000010			mechanical_product_material_code
MPP_000000011			mechanical_product_material_description
MPP_000000009			mechanical_product_material_name
MPP_000000013			mechanical_product_the_function
MPP_000000014			mechanical_product_center_of_gravity
MPP_000000015			mechanical_product_inertia
MPP_000000016			mechanical_product_mass
MPP_000000017			mechanical_product_weight
MPP_000000006			mechanical_product_standard_name
MPP_000000007			mechanical_product_task_in_context
MPP_000000008			mechanical_product_version_id
MPP_000000290			mechanical_product_overall_breadth
MPP_000000291			mechanical_product_overall_height
MPP_000000292			mechanical_product_overall_length
MPP_000000005			mechanical_product_standard_definition
MPP_000000001			item_description
MPP_000000002			item_documentation
MPP_000000003			item_id
MPP_000000004			item_ship_context

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MPC_000000281	001	001	MPC_000000278
flowrate sensor			
MPP_000000288			part_of_mechanical_product_component
MPP_000000012			mechanical_product_documented_definitions
MPP_000000010			mechanical_product_material_code
MPP_000000011			mechanical_product_material_description
MPP_000000009			mechanical_product_material_name
MPP_000000013			mechanical_product_the_function
MPP_000000014			mechanical_product_center_of_gravity
MPP_000000015			mechanical_product_inertia
MPP_000000016			mechanical_product_mass
MPP_000000017			mechanical_product_weight
MPP_000000006			mechanical_product_standard_name
MPP_000000007			mechanical_product_task_in_context
MPP_000000008			mechanical_product_version_id
MPP_000000290			mechanical_product_overall_breadth
MPP_000000291			mechanical_product_overall_height
MPP_000000292			mechanical_product_overall_length
MPP_000000005			mechanical_product_standard_definition
MPP_000000001			item_description
MPP_000000002			item_documentation
MPP_000000003			item_id
MPP_000000004			item_ship_context

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MPC_000000280	001	001	MPC_000000278
temperature sensor			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000279	001	001	MPC_000000278
pressure sensor			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000278	001	001	MPC_000000276
sensor			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		

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MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000277 001 001 MPC_000000276
Gage

MPP_0000000288 part_of_mechanical_product_component
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000276 001 001 MPC_000000166
control component **control component**
component that helps in measuring various parameters of mechanical product

MPP_0000000288 part_of_mechanical_product_component
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

ISO/WD 10303-226(E)

MPC_000000275	001	001	MPC_000000272
profile			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000720	structural_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000274	001	001	MPC_000000272
plate			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000720	structural_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000273	001	001	MPC_000000272
engine block			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000720	structural_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000272	001	001	MPC_000000166
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structural component	structural component
component that are used as mechanical structure	

MPP_000000720	structural_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000271	001	001	MPC_000000269
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shaft locking device	
Not clearly defined ISO TC184/SC4/WG3 N730	

MPP_000000710	safety_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_000000270	001	001	MPC_000000269
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earthing device
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000710	safety_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000269	001	001	MPC_000000166
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safety component
component that are used for safety purpose

safety component

MPP_000000710	safety_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000268	001	001	MPC_000000261
structural-item			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000205	connecting_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000267	001	001	MPC_000000261
seal			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000205	connecting_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000266	001	001	MPC_000000261
rod			
a thin straight piece or bar of material, as of wood or metal			
MPP_000000205	connecting_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000265 001 001 MPC_000000261

pin
a slender cylindrical wooden or metal piece for holding or fastening parts together or serving as a support for suspending one thing from another

MPP_000000205 connecting_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000264 001 001 MPC_000000261

nut
a small block of wood or metal with a central, threaded hole that is designed to fit around and secure a bolt or screw

MPP_000000205 connecting_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id

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MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000263	001	001	MPC_000000261
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chock
a block or wedge placed under something, as a wheel to keep it from moving

MPP_0000000205	connecting_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000262	001	001	MPC_000000261
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bolt
a fastener having a threaded pin or rod with a head at one end, designed to be inserted through holes in assembled parts and secured by a mated nut that is tightened by application of torque

MPP_0000000302	bolt_type
MPP_0000000205	connecting_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description

MPP_000000002 item_documentation
 MPP_000000003 item_id
 MPP_000000004 item_ship_context

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MPC_000000261	001	001	MPC_000000166
connecting component		connecting component	
any intermediary mechanical product that are needed in order to realise a connection			
MPP_000000205	connecting_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000260	001	001	MPC_000000256
welded end			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000626	electrical_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000259	001	001	MPC_000000256
plug			
			a fitting, commonly having two metal prongs for insertion into a fixed socket,used to connect an appliance to a power supply
MPP_000000626	electrical_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000258	001	001	MPC_000000256
socket			
			an opening into which an inserted part is designed to fit
MPP_000000626	electrical_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000257	001	001	MPC_000000256
cable end			
			Not clearly defined ISO TC184/SC4/WG3 N730
MPP_000000626	electrical_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		

MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000256	001	001	MPC_000000239
electrical connector		electrical_connector	
a connector that is used in electrical connection			
MPP_000000626	electrical_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

ISO/WD 10303-226(E)

MPC_000000255	001	001	MPC_000000251
socketted end			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000606	pipng_item_end_type		
MPP_000000704	pipng_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		

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MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000254	001	001	MPC_000000251
flared end			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000606	pipng_item_end_type
MPP_000000704	pipng_connector_type
MPP_000000207	connector_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000253	001	001	MPC_000000251
welded end			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000606	pipng_item_end_type
MPP_000000704	pipng_connector_type
MPP_000000207	connector_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000252	001	001	MPC_000000251
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flanged end
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000606	pipng_item_end_type
MPP_000000704	pipng_connector_type
MPP_000000207	connector_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_000000251	001	001	MPC_000000250
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pipng item end
end of pipe that is used in connection

MPP_000000606	pipng_item_end_type
MPP_000000704	pipng_connector_type
MPP_000000207	connector_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition

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MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

ISO/WD 10303-226(E)

MPC_000000250 001 001 MPC_000000239
pipng connector
connector that is used in piping system **pipng_connector**

MPP_000000704 piping_connector_type
MPP_000000207 connector_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000249 001 001 MPC_000000243
shaft journal
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000207 connector_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000248	001	001	MPC_000000243
bearing element			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000247	001	001	MPC_000000244
keyed end			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000246	001	001	MPC_000000244
welded end			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009 mechanical_product_material_name
 MPP_000000013 mechanical_product_the_function
 MPP_000000014 mechanical_product_center_of_gravity
 MPP_000000015 mechanical_product_inertia
 MPP_000000016 mechanical_product_mass
 MPP_000000017 mechanical_product_weight
 MPP_000000006 mechanical_product_standard_name
 MPP_000000007 mechanical_product_task_in_context
 MPP_000000008 mechanical_product_version_id
 MPP_000000290 mechanical_product_overall_breadth
 MPP_000000291 mechanical_product_overall_height
 MPP_000000292 mechanical_product_overall_length
 MPP_000000005 mechanical_product_standard_definition
 MPP_000000001 item_description
 MPP_000000002 item_documentation
 MPP_000000003 item_id
 MPP_000000004 item_ship_context

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MPC_000000245 001 001 MPC_000000244

flanged end
 Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000207 connector_component_type
 MPP_000000288 part_of_mechanical_product_component
 MPP_000000012 mechanical_product_documented_definitions
 MPP_000000010 mechanical_product_material_code
 MPP_000000011 mechanical_product_material_description
 MPP_000000009 mechanical_product_material_name
 MPP_000000013 mechanical_product_the_function
 MPP_000000014 mechanical_product_center_of_gravity
 MPP_000000015 mechanical_product_inertia
 MPP_000000016 mechanical_product_mass
 MPP_000000017 mechanical_product_weight
 MPP_000000006 mechanical_product_standard_name
 MPP_000000007 mechanical_product_task_in_context
 MPP_000000008 mechanical_product_version_id
 MPP_000000290 mechanical_product_overall_breadth
 MPP_000000291 mechanical_product_overall_height
 MPP_000000292 mechanical_product_overall_length
 MPP_000000005 mechanical_product_standard_definition
 MPP_000000001 item_description
 MPP_000000002 item_documentation
 MPP_000000003 item_id
 MPP_000000004 item_ship_context

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MPC_000000244 001 001 MPC_000000243

shaft end shaft end
 end of the shaft component

MPP_000000207 connector_component_type
 MPP_000000288 part_of_mechanical_product_component
 MPP_000000012 mechanical_product_documented_definitions
 MPP_000000010 mechanical_product_material_code
 MPP_000000011 mechanical_product_material_description
 MPP_000000009 mechanical_product_material_name
 MPP_000000013 mechanical_product_the_function
 MPP_000000014 mechanical_product_center_of_gravity
 MPP_000000015 mechanical_product_inertia
 MPP_000000016 mechanical_product_mass
 MPP_000000017 mechanical_product_weight
 MPP_000000006 mechanical_product_standard_name
 MPP_000000007 mechanical_product_task_in_context
 MPP_000000008 mechanical_product_version_id
 MPP_000000290 mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000243	001	001	MPC_000000239
mechanical connector		mechanical connector	
a connector that is used to connect components			
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000242	001	001	MPC_000000240
hinge			
a jointed or flexible device that allows the turning or pivoting of a part			
MPP_000000505	structural_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000241	001	001	MPC_000000240
bedplate			
a plate,frame or platform functioning as a base or support for a machine			
MPP_000000301	bedplate_type		
MPP_000000505	structural_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000240	001	001	MPC_000000239
stuctural connector		structural connector	
a connector component that connects a machinery or equipment to a fixed platform			
MPP_000000505	structural_connector_type		
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000239	001	001	MPC_000000166
connector component		connector_component	
a type of component that plays the role of a connector			
MPP_000000207	connector_component_type		
MPP_000000288	part_of_mechanical_product_component		

MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000238	001	001	MPC_000000231
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swivel

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_000000237	001	001	MPC_000000231
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shackle

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id

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MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000236 001 001 MPC_000000231

rope
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

ISO/WD 10303-226 N730

MPC_000000235 001 001 MPC_000000231

lifting eye
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000234	001	001	MPC_000000231
lifting cable			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000233	001	001	MPC_000000231
chain			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000232	001	001	MPC_000000231
block			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		

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MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000231	001	001	MPC_000000166
lifting component		lifting component	
a component that is used during lifting			

MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000230	001	001	MPC_000000027
wire			
a pliable metallic rod or strand made in many lengths and diameters, coated with an electrical insulator, and used chiefly for structural support or to conduct electricity			

MPP_000000605	electrical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition

MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000229	001	001	MPC_000000227
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electric cable

MPP_000000605	electrical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000228	001	001	MPC_000000227
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plug

a fitting, commonly having two metal prongs for insertion into a fixed socket, used to connect an appliance to a power supply

MPP_000000605	electrical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000227	001	001	MPC_0000000166
electrical component		electrical component	
a component used in electrical system			
MPP_0000000605	electrical_component_type		
MPP_0000000288	part_of_mechanical_product_component		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000226	001	001	MPC_0000000192
rudder			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000278	mechanical_component_type		
MPP_0000000288	part_of_mechanical_product_component		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000225	001	001	MPC_0000000192
fuel pump			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000278	mechanical_component_type		
MPP_0000000288	part_of_mechanical_product_component		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000224	001	001	MPC_000000192
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shaft brake
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000223	001	001	MPC_000000192
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bearing element
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

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MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_0000000222	001	001	MPC_0000000192
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casing
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000278	mechanical_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_0000000221	001	001	MPC_0000000192
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web
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000278	mechanical_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000220	001	001	MPC_000000192
valve gear			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000219	001	001	MPC_000000192
valve cage			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000218	001	001	MPC_000000192
tension rod			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000215	001	001	MPC_000000213
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exhaust manifold
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000214	001	001	MPC_000000213
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intake manifold
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000213	001	001	MPC_000000192
manifold		manifold	
mechanical component that allow air to enter or exit the mechanical product			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000212	001	001	MPC_000000192
intake port			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000211	001	001	MPC_000000192
inspection door			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000210	001	001	MPC_000000192
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inlet valve
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000209	001	001	MPC_000000192
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guides
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

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MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

MPC_000000208 001 001 MPC_000000192

guide shores
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278 mechanical_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

MPC_000000207 001 001 MPC_000000192

gudgeon pin
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278 mechanical_component_type
MPP_000000288 part_of_mechanical_product_component
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

MPC_000000206	001	001	MPC_000000192
gland			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000205	001	001	MPC_000000192
fuel pump gear			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000204	001	001	MPC_000000192
fuel injector			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000203	001	001	MPC_000000192
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exhaust valve
 Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000202	001	001	MPC_000000192
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exhaust port
 Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000201	001	001	MPC_000000192
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drive gear
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000200	001	001	MPC_000000192
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cylinder liner
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000199	001	001	MPC_000000192
cylinder			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000198	001	001	MPC_000000192
crossshear pin			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000197	001	001	MPC_000000192
crossshear and guide			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000196	001	001	MPC_000000192
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crankcase

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000195	001	001	MPC_000000192
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connecting rod

Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000194	001	001	MPC_000000192
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brake pad
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000193	001	001	MPC_000000192
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balance weight
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000278	mechanical_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000192	001	001	MPC_000000166
mechanical component		mechanical_component	
a component with a primary mechanical function			
MPP_000000278	mechanical_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000191	001	001	MPC_000000183
discharge duct			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000299	pipng_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000190	001	001	MPC_000000183
tunnel			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000299	pipng_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000187	001	001	MPC_000000183
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duct
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000299	pipng_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000186	001	001	MPC_000000184
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fuel line
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000603	pipe_type
MPP_000000299	pipng_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000185	001	001	MPC_000000184
exhaust pipe			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000603	pipe_type		
MPP_000000299	pipng_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000184	001	001	MPC_000000183
pipe		pipe	
a hollow component through which fluid flows in the system			
MPP_000000603	pipe_type		
MPP_000000299	pipng_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000183	001	001	MPC_000000166
pipng component		pipng component	
components used in pipng system or equipments			
MPP_000000299	pipng_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		

MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000182	001	001	MPC_000000166
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process component
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000181	001	001	MPC_000000167
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gear stage
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000602	rotating_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id

MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

MPC_0000000180 001 001 MPC_0000000167
impeller
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000602 rotating_component_type
MPP_0000000288 part_of_mechanical_product_component
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

MPC_0000000179 001 001 MPC_0000000167
gear wheel
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000602 rotating_component_type
MPP_0000000288 part_of_mechanical_product_component
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

MPC_000000178	001	001	MPC_000000167
PTO/PTI assembly			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000177	001	001	MPC_000000167
turning gear			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000176	001	001	MPC_000000167
camshaft			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000175	001	001	MPC_000000171
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small end bearing
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000202	bearing_type
MPP_000000602	rotating_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

MPC_000000174	001	001	MPC_000000171
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shaft bearing
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000202	bearing_type
MPP_000000602	rotating_component_type
MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context

MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

MPC_0000000173	001	001	MPC_0000000171
main bearing			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_0000000202	bearing_type
MPP_0000000602	rotating_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

MPC_0000000172	001	001	MPC_0000000171
big end bearing			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_0000000202	bearing_type
MPP_0000000602	rotating_component_type
MPP_0000000288	part_of_mechanical_product_component
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id

MPP_000000004 item_ship_context

MPC_000000171	001	001	MPC_000000167
bearing		bearing	
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000202	bearing_type		
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000170	001	001	MPC_000000167
crankshaft			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000169	001	001	MPC_000000167
flywheel			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

MPC_000000168	001	001	MPC_000000167
shaft		shaft	
a beam transmitting torque between prime mover and the load			
MPP_000000500	shaft_type		
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000167	001	001	MPC_000000166
rotating component		rotary component	
a component that has a rotary motion in the system			
MPP_000000602	rotating_component_type		
MPP_000000288	part_of_mechanical_product_component		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		

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MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000166	001	001	MPC_000000001
component		component	
a mechanical product that is part of another mechanical product and has not already been classified as a system or an equipment			

MPP_000000288	part_of_mechanical_product_component
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000165	001	001	MPC_000000112
steering control mechanism			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height

MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000164	001	001	MPC_000000112
steering system			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_0000000295	mechanical_system_functionality
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000163	001	001	MPC_000000112
safety system			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_0000000295	mechanical_system_functionality
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000162	001	001	MPC_000000112
rudder system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000161	001	001	MPC_000000112
exhaust gas treatment system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000160	001	001	MPC_000000112
engine main gear			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		

MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000159	001	001	MPC_000000112
engine control system			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000158	001	001	MPC_000000112
data logging system			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation

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MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000157 001 001 MPC_000000112

alarm system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000295 mechanical_system_functionality
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000156 001 001 MPC_000000153

manual starting system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000600 starting_system_type
MPP_000000295 mechanical_system_functionality
MPP_000000012 mechanical_product_documented_definitions
MPP_000000010 mechanical_product_material_code
MPP_000000011 mechanical_product_material_description
MPP_000000009 mechanical_product_material_name
MPP_000000013 mechanical_product_the_function
MPP_000000014 mechanical_product_center_of_gravity
MPP_000000015 mechanical_product_inertia
MPP_000000016 mechanical_product_mass
MPP_000000017 mechanical_product_weight
MPP_000000006 mechanical_product_standard_name
MPP_000000007 mechanical_product_task_in_context
MPP_000000008 mechanical_product_version_id
MPP_000000290 mechanical_product_overall_breadth
MPP_000000291 mechanical_product_overall_height
MPP_000000292 mechanical_product_overall_length
MPP_000000005 mechanical_product_standard_definition
MPP_000000001 item_description
MPP_000000002 item_documentation
MPP_000000003 item_id
MPP_000000004 item_ship_context

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MPC_000000155	001	001	MPC_000000153
electric starting system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000600	starting_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000154	001	001	MPC_000000153
pneumatic starting system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000600	starting_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000153	001	001	MPC_000000112
starting system		starting system	
a syetem that is used for starting a mechanical product			
MPP_000000600	starting_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000150	001	001	MPC_000000112
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electrical system
system that primarily consists of electrical equipments,components etc.

MPP_000000250	type_of_electrical_system
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000149	001	001	MPC_000000112
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control and monitoring system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000209	type_of_control_and_monitoring_system
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000148	001	001	MPC_000000147
crankcase oil mist detection system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000595	condition_monitoring_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000147	001	001	MPC_000000112
condition monitoring system		condition monitoring system	
a system that helps in monitoring the state of the mechanical product			
MPP_000000595	condition_monitoring_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000146	001	001	MPC_000000125
steam system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000145	001	001	MPC_000000125
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pressure water system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000144	001	001	MPC_000000125
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lubrication system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

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MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000143	001	001	MPC_000000125
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intake air system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000296	pipng_system_type
MPP_0000000295	mechanical_system_functionality
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000142	001	001	MPC_000000125
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heeling compensation system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000296	pipng_system_type
MPP_0000000295	mechanical_system_functionality
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_000000141	001	001	MPC_000000125
fuel supply system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000140	001	001	MPC_000000125
fuel oil preheating system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000139	001	001	MPC_000000125
fuel injection system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

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MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000138	001	001	MPC_000000125
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fresh water system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000137	001	001	MPC_000000125
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fire fighting system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000136	001	001	MPC_000000125
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feedwater system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000135	001	001	MPC_000000125
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exhaust gas system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000134	001	001	MPC_000000125
engine room ventilation system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000133	001	001	MPC_000000125
cooling water system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000132	001	001	MPC_000000125
cooling air system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000131	001	001	MPC_000000125
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control oil system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000130	001	001	MPC_000000125
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control air system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000296	pipng_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth

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MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000129 001 001 MPC_000000125

condensate system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000296 piping_system_type
MPP_0000000295 mechanical_system_functionality
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000128 001 001 MPC_000000125

compressed air system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000296 piping_system_type
MPP_0000000295 mechanical_system_functionality
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000127	001	001	MPC_000000125
bilge water system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000126	001	001	MPC_000000125
ballast system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000125	001	001	MPC_000000112
pipng system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000296	pipng_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_000000124	001	001	MPC_000000112
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auxiliary system
a system that supports one or more main systems

MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000123	001	001	MPC_000000118
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combine cycle plant
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_000000290	power_generation_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height

MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

ISO/WD 10303-226 N730

MPC_000000122	001	001	MPC_000000118
gas turbine plant			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000290	power_generation_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000121	001	001	MPC_000000118
steam power plant			
Not clearly defined ISO TC184/SC4/WG3 N730			

MPP_000000290	power_generation_system_type
MPP_000000295	mechanical_system_functionality
MPP_000000012	mechanical_product_documented_definitions
MPP_000000010	mechanical_product_material_code
MPP_000000011	mechanical_product_material_description
MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000120	001	001	MPC_000000118
shaft-generator system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000290	power_generation_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000119	001	001	MPC_000000118
diesel-electric plant			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000290	power_generation_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000118	001	001	MPC_000000112
power generation system		power generation system	
a system that converts fuel energy into electrical or mechanical energy			
MPP_000000290	power_generation_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		

MPP_000000009	mechanical_product_material_name
MPP_000000013	mechanical_product_the_function
MPP_000000014	mechanical_product_center_of_gravity
MPP_000000015	mechanical_product_inertia
MPP_000000016	mechanical_product_mass
MPP_000000017	mechanical_product_weight
MPP_000000006	mechanical_product_standard_name
MPP_000000007	mechanical_product_task_in_context
MPP_000000008	mechanical_product_version_id
MPP_000000290	mechanical_product_overall_breadth
MPP_000000291	mechanical_product_overall_height
MPP_000000292	mechanical_product_overall_length
MPP_000000005	mechanical_product_standard_definition
MPP_000000001	item_description
MPP_000000002	item_documentation
MPP_000000003	item_id
MPP_000000004	item_ship_context

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MPC_000000117	001	001	MPC_000000112
steam generation system(boiler)		steam generation system	
a system that converts water into steam			
MPP_000000501	type_of_steam_generation_system		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000116	001	001	MPC_000000112
manoeuvring system			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		

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MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000115 001 001 MPC_000000113
electric propulsion system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000307 propulsion_system_type
MPP_0000000295 mechanical_system_functionality
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000114 001 001 MPC_000000113
mechanical propulsion system
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000307 propulsion_system_type
MPP_0000000295 mechanical_system_functionality
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_000000113	001	001	MPC_000000112
propulsion system			propulsion system
a propulsion system used to achieve the main ship forward motion			
MPP_000000307	propulsion_system_type		
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000112	001	001	MPC_000000001
system			
an assembly of one or more items, with functional and physical relationships between them, that performs or can perform a clearly identified function as a whole			
MPP_000000295	mechanical_system_functionality		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000111	001	001	MPC_000000107
winch			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000100	lifting_equipment_lifting_capacity		
MPP_000000101	lifting_capacity_nature_of_lifting_operation		
MPP_000000258	lifting_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		

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MPP_0000000125 equipment_name_manufacturer_specific
MPP_0000000126 equipment_name_user_specific
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_0000000110 001 001 MPC_0000000107

derrick
Not clearly defined ISO TC184/SC4/WG3 N730

MPP_0000000100 lifting_equipment_lifting_capacity
MPP_0000000101 lifting_capacity_nature_of_lifting_operation
MPP_0000000258 lifting_equipment_type
MPP_0000000020 equipment_function
MPP_0000000019 equipment_type_of_duty
MPP_0000000125 equipment_name_manufacturer_specific
MPP_0000000126 equipment_name_user_specific
MPP_0000000012 mechanical_product_documented_definitions
MPP_0000000010 mechanical_product_material_code
MPP_0000000011 mechanical_product_material_description
MPP_0000000009 mechanical_product_material_name
MPP_0000000013 mechanical_product_the_function
MPP_0000000014 mechanical_product_center_of_gravity
MPP_0000000015 mechanical_product_inertia
MPP_0000000016 mechanical_product_mass
MPP_0000000017 mechanical_product_weight
MPP_0000000006 mechanical_product_standard_name
MPP_0000000007 mechanical_product_task_in_context
MPP_0000000008 mechanical_product_version_id
MPP_0000000290 mechanical_product_overall_breadth
MPP_0000000291 mechanical_product_overall_height
MPP_0000000292 mechanical_product_overall_length
MPP_0000000005 mechanical_product_standard_definition
MPP_0000000001 item_description
MPP_0000000002 item_documentation
MPP_0000000003 item_id
MPP_0000000004 item_ship_context

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MPC_0000000109 001 001 MPC_0000000108

deck_crane
crane is of type deck crane

MPP_0000000115 crane_braking_time
MPP_0000000116 crane_hoisting_speed_1
MPP_0000000117 crane_hoisting_speed_2
MPP_0000000118 crane_hoisting_speed_3
MPP_0000000119 crane_lifting_height

MPP_0000000120	crane_luffing_time
MPP_0000000121	crane_slewing_speed_single
MPP_0000000122	crane_slewing_speed_twin
MPP_0000000124	crane_overturning_moment
MPP_0000000123	crane_stability_moment
MPP_0000000113	crane_jib_parking_arrangements
MPP_0000000106	crane_forces_due_to_wind
MPP_0000000107	crane_forces_dynamic
MPP_0000000108	crane_forces_ship_inclination
MPP_0000000109	crane_loads_dead
MPP_0000000110	crane_loads_live
MPP_0000000111	crane_loads_on_platform
MPP_0000000112	crane_loads_snow_and_ice
MPP_0000000102	crane_jib_angle_max
MPP_0000000103	crane_jib_angle_min
MPP_0000000104	crane_jib_radius_max
MPP_0000000105	crane_jib_radius_min
MPP_0000000213	crane_type
MPP_0000000215	crane_ambient-condition_wind_speed
MPP_0000000100	lifting_equipment_lifting_capacity
MPP_0000000101	lifting_capacity_nature_of_lifting_operation
MPP_0000000258	lifting_equipment_type
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_0000000290	mechanical_product_overall_breadth
MPP_0000000291	mechanical_product_overall_height
MPP_0000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000108	001	001	MPC_0000000107
crane			
type of lifting equipment used in cargo handling, mooring and anchor handling etc.			
MPP_0000000115	crane_braking_time		
MPP_0000000116	crane_hoisting_speed_1		
MPP_0000000117	crane_hoisting_speed_2		
MPP_0000000118	crane_hoisting_speed_3		
MPP_0000000119	crane_lifting_height		
MPP_0000000120	crane_luffing_time		
MPP_0000000121	crane_slewing_speed_single		
MPP_0000000122	crane_slewing_speed_twin		
MPP_0000000124	crane_overturning_moment		
MPP_0000000123	crane_stability_moment		
MPP_0000000113	crane_jib_parking_arrangements		
MPP_0000000106	crane_forces_due_to_wind		
MPP_0000000107	crane_forces_dynamic		
MPP_0000000108	crane_forces_ship_inclination		
MPP_0000000109	crane_loads_dead		
MPP_0000000110	crane_loads_live		

MPP_0000000111	crane_loads_on_platform
MPP_0000000112	crane_loads_snow_and_ice
MPP_0000000102	crane_jib_angle_max
MPP_0000000103	crane_jib_angle_min
MPP_0000000104	crane_jib_radius_max
MPP_0000000105	crane_jib_radius_min
MPP_0000000213	crane_type
MPP_0000000215	crane_ambient-condition_wind_speed
MPP_0000000100	lifting_equipment_lifting_capacity
MPP_0000000101	lifting_capacity_nature_of_lifting_operation
MPP_0000000258	lifting_equipment_type
MPP_0000000020	equipment_function
MPP_0000000019	equipment_type_of_duty
MPP_0000000125	equipment_name_manufacturer_specific
MPP_0000000126	equipment_name_user_specific
MPP_0000000012	mechanical_product_documented_definitions
MPP_0000000010	mechanical_product_material_code
MPP_0000000011	mechanical_product_material_description
MPP_0000000009	mechanical_product_material_name
MPP_0000000013	mechanical_product_the_function
MPP_0000000014	mechanical_product_center_of_gravity
MPP_0000000015	mechanical_product_inertia
MPP_0000000016	mechanical_product_mass
MPP_0000000017	mechanical_product_weight
MPP_0000000006	mechanical_product_standard_name
MPP_0000000007	mechanical_product_task_in_context
MPP_0000000008	mechanical_product_version_id
MPP_00000000290	mechanical_product_overall_breadth
MPP_00000000291	mechanical_product_overall_height
MPP_00000000292	mechanical_product_overall_length
MPP_0000000005	mechanical_product_standard_definition
MPP_0000000001	item_description
MPP_0000000002	item_documentation
MPP_0000000003	item_id
MPP_0000000004	item_ship_context

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MPC_0000000107	001	001	MPC_0000000002
lifting equipment		lifting equipment	
equipment that is used for lifting			
MPP_0000000100	lifting_equipment_lifting_capacity		
MPP_0000000101	lifting_capacity_nature_of_lifting_operation		
MPP_0000000258	lifting_equipment_type		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_00000000290	mechanical_product_overall_breadth		
MPP_00000000291	mechanical_product_overall_height		
MPP_00000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000106	001	001	MPC_000000103
motor starter			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000245	type_of_electrical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000105	001	001	MPC_000000103
switch board			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000245	type_of_electrical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000104	001	001	MPC_000000103
transformer			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000245	type_of_electrical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000103	001	001	MPC_000000002
electrical equipment			
equipment that is primarily used in an electrical system			
MPP_000000245	type_of_electrical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000102	001	001	MPC_000000100
spring-loaded damper			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000587	damper_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000101	001	001	MPC_000000100
viscous damper			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000587	damper_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000100	001	001	MPC_000000088
damper		damper	
mechanical equipment that is used in energy absorption			
MPP_000000587	damper_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000099	001	001	MPC_000000088
mechanical governor			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000098	001	001	MPC_000000088
silencer			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000097	001	001	MPC_000000094
electro-magnetic clutch			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000096	001	001	MPC_000000094
hydraulic clutch			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000095	001	001	MPC_000000094
pneumatic clutch			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000094	001	001	MPC_000000088
clutch		clutch	
a disengagable connection between two elements in a mechanical transmission system			
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000093	001	001	MPC_000000090
solid coupling			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000212	coupling_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000092	001	001	MPC_000000090
fluid coupling			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000212	coupling_type		
MPP_0000000281	type_of_mechanical_equipment		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000091	001	001	MPC_000000090
flexible coupling			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000212	coupling_type		
MPP_0000000281	type_of_mechanical_equipment		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000090	001	001	MPC_000000088
shaft coupling			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000212	coupling_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000089	001	001	MPC_000000088
gear box			
mechanical equipment that is used for transferring energy			
MPP_000000252	gear_box_type		
MPP_000000281	type_of_mechanical_equipment		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000088	001	001	MPC_000000002
mechanical equipment		mechanical_equipment	
a non-machinery equipment that is primarily used in mechanical systems			
MPP_000000281		type_of_mechanical_equipment	
MPP_000000020		equipment_function	
MPP_000000019		equipment_type_of_duty	
MPP_000000125		equipment_name_manufacturer_specific	
MPP_000000126		equipment_name_user_specific	
MPP_000000012		mechanical_product_documented_definitions	
MPP_000000010		mechanical_product_material_code	
MPP_000000011		mechanical_product_material_description	
MPP_000000009		mechanical_product_material_name	
MPP_000000013		mechanical_product_the_function	
MPP_000000014		mechanical_product_center_of_gravity	
MPP_000000015		mechanical_product_inertia	
MPP_000000016		mechanical_product_mass	
MPP_000000017		mechanical_product_weight	
MPP_000000006		mechanical_product_standard_name	
MPP_000000007		mechanical_product_task_in_context	
MPP_000000008		mechanical_product_version_id	
MPP_000000290		mechanical_product_overall_breadth	
MPP_000000291		mechanical_product_overall_height	
MPP_000000292		mechanical_product_overall_length	
MPP_000000005		mechanical_product_standard_definition	
MPP_000000001		item_description	
MPP_000000002		item_documentation	
MPP_000000003		item_id	
MPP_000000004		item_ship_context	

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MPC_000000087	001	001	MPC_000000083
manual actuator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000581		actuator_type	
MPP_000000211		control_equipment_type	
MPP_000000020		equipment_function	
MPP_000000019		equipment_type_of_duty	
MPP_000000125		equipment_name_manufacturer_specific	
MPP_000000126		equipment_name_user_specific	
MPP_000000012		mechanical_product_documented_definitions	
MPP_000000010		mechanical_product_material_code	
MPP_000000011		mechanical_product_material_description	
MPP_000000009		mechanical_product_material_name	
MPP_000000013		mechanical_product_the_function	
MPP_000000014		mechanical_product_center_of_gravity	
MPP_000000015		mechanical_product_inertia	
MPP_000000016		mechanical_product_mass	
MPP_000000017		mechanical_product_weight	
MPP_000000006		mechanical_product_standard_name	
MPP_000000007		mechanical_product_task_in_context	
MPP_000000008		mechanical_product_version_id	
MPP_000000290		mechanical_product_overall_breadth	
MPP_000000291		mechanical_product_overall_height	
MPP_000000292		mechanical_product_overall_length	
MPP_000000005		mechanical_product_standard_definition	
MPP_000000001		item_description	
MPP_000000002		item_documentation	
MPP_000000003		item_id	
MPP_000000004		item_ship_context	

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MPC_000000086	001	001	MPC_000000083
hydraulic actuator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000581	actuator_type		
MPP_000000211	control_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000085	001	001	MPC_000000083
electric actuator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000581	actuator_type		
MPP_000000211	control_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000084	001	001	MPC_000000083
pneumatic actuator			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000581	actuator_type		
MPP_000000211	control_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000083	001	001	MPC_000000080
actuator			
a control equipment that generates motion of force			
MPP_000000581	actuator_type		
MPP_000000211	control_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000082	001	001	MPC_000000080
signal conditioner			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000211	control_equipment_type		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000081	001	001	MPC_000000080
analyser			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_0000000201	analyser_type		
MPP_0000000211	control_equipment_type		
MPP_0000000020	equipment_function		
MPP_0000000019	equipment_type_of_duty		
MPP_0000000125	equipment_name_manufacturer_specific		
MPP_0000000126	equipment_name_user_specific		
MPP_0000000012	mechanical_product_documented_definitions		
MPP_0000000010	mechanical_product_material_code		
MPP_0000000011	mechanical_product_material_description		
MPP_0000000009	mechanical_product_material_name		
MPP_0000000013	mechanical_product_the_function		
MPP_0000000014	mechanical_product_center_of_gravity		
MPP_0000000015	mechanical_product_inertia		
MPP_0000000016	mechanical_product_mass		
MPP_0000000017	mechanical_product_weight		
MPP_0000000006	mechanical_product_standard_name		
MPP_0000000007	mechanical_product_task_in_context		
MPP_0000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_0000000005	mechanical_product_standard_definition		
MPP_0000000001	item_description		
MPP_0000000002	item_documentation		
MPP_0000000003	item_id		
MPP_0000000004	item_ship_context		

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MPC_000000080	001	001	MPC_000000002
control equipment		control equipment	
a non-machinery equipment that is primarily used in the control and monitoring system			
MPP_000000211	control_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000079	001	001	MPC_000000072
sewage tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000078	001	001	MPC_000000072
sludge tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000077	001	001	MPC_000000072
thermal oil tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000076	001	001	MPC_000000072
hydraulic oil tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000075	001	001	MPC_000000072
fresh water tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000074	001	001	MPC_000000072
lube oil tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

ISO/WD 10303-226 N730

MPC_000000073	001	001	MPC_000000072
fuel tank			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

ISO/WD 10303-226 N730

MPC_000000072	001	001	MPC_000000055
tank		tank	
container that hold the fluid			
MPP_000000578	tank_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000071	001	001	MPC_000000055
pressure vessel			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

ISO/WD 10303-226 N730

MPC_000000070	001	001	MPC_000000056
dish valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

ISO/WD 10303-226 N730

MPC_000000069	001	001	MPC_000000056
relief valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_0000000290	mechanical_product_overall_breadth		
MPP_0000000291	mechanical_product_overall_height		
MPP_0000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000068	001	001	MPC_000000056
poppet valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000067	001	001	MPC_000000056
ball float valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000066	001	001	MPC_000000056
soleroid valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000065	001	001	MPC_000000056
pressure control valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000064	001	001	MPC_000000056
safety valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000063	001	001	MPC_000000056
check valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000062	001	001	MPC_000000056
butterfly valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000061	001	001	MPC_000000056
ball valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000060	001	001	MPC_000000056
plug valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000059	001	001	MPC_000000056
globe valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000555	valve_type		
MPP_000000300	pipng_equipment_type		
MPP_000000020	equipment_function		
MPP_000000019	equipment_type_of_duty		
MPP_000000125	equipment_name_manufacturer_specific		
MPP_000000126	equipment_name_user_specific		
MPP_000000012	mechanical_product_documented_definitions		
MPP_000000010	mechanical_product_material_code		
MPP_000000011	mechanical_product_material_description		
MPP_000000009	mechanical_product_material_name		
MPP_000000013	mechanical_product_the_function		
MPP_000000014	mechanical_product_center_of_gravity		
MPP_000000015	mechanical_product_inertia		
MPP_000000016	mechanical_product_mass		
MPP_000000017	mechanical_product_weight		
MPP_000000006	mechanical_product_standard_name		
MPP_000000007	mechanical_product_task_in_context		
MPP_000000008	mechanical_product_version_id		
MPP_000000290	mechanical_product_overall_breadth		
MPP_000000291	mechanical_product_overall_height		
MPP_000000292	mechanical_product_overall_length		
MPP_000000005	mechanical_product_standard_definition		
MPP_000000001	item_description		
MPP_000000002	item_documentation		
MPP_000000003	item_id		
MPP_000000004	item_ship_context		

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MPC_000000058	001	001	MPC_000000056
diaphragm valve			
Not clearly defined ISO TC184/SC4/WG3 N730			
MPP_000000055			valve_type
MPP_0000000300			pipng_equipment_type
MPP_0000000020			equipment_function
MPP_0000000019			equipment_type_of_duty
MPP_0000000125			equipment_name_manufacturer_specific
MPP_0000000126			equipment_name_user_specific
MPP_0000000012			mechanical_product_documented_definitions
MPP_0000000010			mechanical_product_material_code
MPP_0000000011			mechanical_product_material_description
MPP_0000000009			mechanical_product_material_name
MPP_0000000013			mechanical_product_the_function
MPP_0000000014			mechanical_product_center_of_gravity
MPP_0000000015			mechanical_product_inertia
MPP_0000000016			mechanical_product_mass
MPP_0000000017			mechanical_product_weight
MPP_0000000006			mechanical_product_standard_name
MPP_0000000007			mechanical_product_task_in_context
MPP_0000000008			mechanical_product_version_id
MPP_0000000290			mechanical_product_overall_breadth
MPP_0000000291			mechanical_product_overall_height
MPP_0000000292			mechanical_product_overall_length
MPP_0000000005			mechanical_product_standard_definition
MPP_0000000001			item_description
MPP_0000000002			item_documentation
MPP_0000000003			item_id
MPP_0000000004			item_ship_context

MPC_0000000040	ISO/WD 10303-226(E)(4.2.71.1)
AIC	air_cooler
AIH	air_heater
ECR	economiser
FUP	fuel_preheater
OIC	oil_cooler
OIH	oil_heater
RER	recuperator
REGR	regenerator

M.4 Property Definitions

MPP_0000000300	001	001	A52
	string		A..0
	pipng_equipment_type		
	pipng_equipment_type		
	type of pipng equipment		
MPC_0000000055	ISO/WD 10303-226(E)(4.2.139)		
PRL	pressure_vessel		
TAK	tank		
TAK	tank		
VAE	valve		
UDPET	user_defined_pipng_equipment_type		

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MPP_000000256	001	001	A..0	A52
string				
heat_exchanger_type heat_exchanger_type type of heat exchanger based on its construction				
MPC_0000000040		ISO/WD 10303-226(E)(4.2.71.2)		
STCOF STCRF STPAF UDHET		shell_and_tube_counter_flow shell_and_tube_cross_flow shell_and_tube_parallel_flow user_defined_heat_exchanger_role		
MPP_000000255	001	001	A..0	A52
string				
heat_exchanger_role heat_exchanger_role function of heat exchanger				
WAR WAH UDHER		water_cooler water_heater user_defined_heat_exchanger_role		
MPP_000000576	001	001	A..0	A52
string				
filter_type filter_type type of filter				
MPC_0000000036		ISO/WD 10303-226(E)()		
AIFL FUFL LUFL		air_filter fuel_filter lube_oil_filter		
MPP_000000304	001	001	A..0	A52
string				
process_equipment_type process_equipment_type type of process equipment				
MPC_0000000035		ISO/WD 10303-226(E)(4.2.145)		
FITR HEER CODR DELR DETR EJTR		filter heat_exchanger condenser de-oiler de-aerator ejector		
MPP_000000575	001	001	A..0	A52
string				
process_machinery_type process_machinery_type type of process machinery				
MPC_0000000028		ISO/WD 10303-226(E)()		
AGTR CEFG SETR		agitator centrifuge separator		

	PUFR HOGR CLFR		purifier homogeniser clarifier		
MPP_000000525	001	001		A52	
	string		A..0		
	electrical_machinery_type electrical_machinery_type type of electrical machinery				
	MPC_000000025		ISO/WD 10303-226(E)()		
	ELMR ELGR		electric_motor electric_generator		
MPP_000000350	001	001		A79	
	integer		NR1..0		
	rotational_speed screw_propeller_design_rotational_speed designed rotational speed of the screw propeller at the operating point				
	MPC_000000014		ISO/WD 10303-226(E)(4.2.126.4)		
MPP_000000343	001	001		K27	
	real_measure_type		NR2..0.3	watt	
	design_power screw_propeller_design_power designed power of the screw propeller at the operating point				
	MPC_000000014		ISO/WD 10303-226(E)(4.2.126.3)		
MPP_000000341	001	001		A61	
	string		A..0		
	design_description screw_propeller_design_point_description description of the design point of screw propeller				
	MPC_000000014		ISO/WD 10303-226(E)(4.2.126.1)		
MPP_000000340	001	001		A79	
	real		NR2..0.3		
	design_efficiency screw_propeller_design_efficiency designed efficiency of the screw propeller				
	MPC_000000014		ISO/WD 10303-226(E)(4.2.126.2)		
MPP_000000333	001	001		A79	
	integer		NR1..0		
	number_of_blades screw_propeller_number_of_blades number of blades in the screw propeller				
	MPC_000000014		ISO/WD 10303-226(E)(4.2.170.2)		

MPP_000000330	001	001	A..0	A52
string				
propeller_type screw_propeller_type type of propeller				
MPC_000000014			ISO/WD 10303-226(E)(4.2.169)	
MPP_000000069	001	001	NR2..0.3	T03
real_measure_type			metre	
design_pitch screw_propeller_design_pitch designed pitch for the screw propeller				
MPC_000000014			ISO/WD 10303-226(E)(4.2.143)	
MPP_000000074	001	001	NR2..0.0	T03
real_measure_type			metre	
tip clearance to hull screw_propeller_tip_clearance_to_hull clearance length(minimum distance) between propeller tip and hull				
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.11)	
MPP_000000075	001	001	NR2..0.0	T03
real_measure_type			metre	
max_ahead_pitch screw_propeller_max_ahead_pitch maximum pitch value of the ship ahead motion				
MPC_000000014			ISO/WD 10303-226(E)(4.2.171.2)	
MPP_000000076	001	001	NR2..0.0	T03
real_measure_type			metre	
max_astern_pitch screw_propeller_max_astern_pitch maximum pitch value for the ship astern motion				
MPC_000000014			ISO/WD 10303-226(E)(4.2.171.4)	
MPP_000000077	001	001	NR2..0.0	T03
real_measure_type			metre	
immersion_in_loaded_condition screw_propeller_immersion_in_loaded_condition depth of propeller immersion when the ship is under loaded condition				
MPC_000000014			ISO/WD 10303-226(E)(4.2.174.3)	

MPP_000000078	001	001		T03
real_measure_type		NR2..0.0	metre	
immersion_in_ballast_condition screw_propeller_immersion_in_ballast_condition depth of propeller immersion when the ship is under ballast condition				
MPC_000000014		ISO/WD 10303-226(E)(4.2.174.2)		
MPP_000000079	001	001		A52
string		A..0		
type of construction screw_propeller_type_of_construction identify type of construction of a screw propeller				
MPC_000000014		ISO/WD 10303-226(E)(4.2.172.9)		
BUUP		built_up		
MOBK		monoblock		
UDTOC		user_defined_type_of_construction		
MPP_000000080	001	001		A52
string		A..0		
propeller_type_of_pitch screw_propeller_type_of_pitch identifies the type of propeller by its pitch				
MPC_000000014		ISO/WD 10303-226(E)(4.2.172.8)		
ADPH		adjustable_pitch		
COPH		controllable_pitch		
FIPH		fixed_pitch		
MPP_000000081	001	001		A52
string		A..0		
propeller type by duct screw_propeller_type_by_duct Identifies whether the propeller type is ducted or non-ducted				
MPC_000000014		ISO/WD 10303-226(E)(4.2.172.7)		
DUFD		ducted_fixed		
DUSE		ducted_steerable		
NODD		non_ducted		
MPP_000000082	001	001		A52
string		A..0		
propeller type design configuration screw_propeller_type_by_design_configuration type of propeller according to design configuration				
MPC_000000014		ISO/WD 10303-226(E)(4.2.172.6)		
CORG		contra_rotating		
COVL		conventional		
UDDC		user_defined_type_design_configuration		
VAWL		vane_wheel		
MPP_000000083	001	001		A52

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	string		A..0	
	propeller type by blade outline screw_propeller_type_by_blade_outline type of blade outline			
	MPC_0000000014		ISO/WD 10303-226(E)(4.2.172.5)	
	CONL		conventional	
	SKWD		skewed	
	UDBOT		user_defined_blade_outline_type	
MPP_0000000084	001	001		A52
	string		A..0	
	pitch_control_mechanism_description screw_propeller_pitch_control_mechanism_description description of the pitch control mechanism			
	MPC_0000000014		ISO/WD 10303-226(E)(4.2.172.4)	
MPP_0000000085	001	001		A52
	string		A..0	
	hub type screw_propeller_hub_type type of hub			
	MPC_0000000014		ISO/WD 10303-226(E)(4.2.172.3)	
MPP_0000000086	001	001		A52
	string		A..0	
	fit of hub to shaft screw_propeller_fit_of_hub_to_shaft information on the fit of hub to shaft in text format			
	MPC_0000000014		ISO/WD 10303-226(E)(4.2.172.2)	
MPP_0000000087	001	001		T01
	real_measure_type		NR2..0.0	radian
	skew angle screw_propeller_skew_angle skew angle of screw propeller			
	MPC_0000000014		ISO/WD 10303-22(E)(4.2.175.10)	
MPP_0000000088	001	001		A52
	string		A..0	
	entrained water method of calculation screw_propeller_entrained_water_method_of_calculation the calculation method of entrained water			
	MPC_0000000014		ISO/WD 10303-226(E)(4.2.173.2)	

MPP_000000089	001	001		K07
	real_measure_type		NR2..0.0	gramE1 metreE2
	inertia in water			
	screw_propeller_inertia_in_water			
	propeller mass moment of inertia when in water(including entrained water)			
MPC_000000014			ISO/WD 10303-226(E)(4.2.173.3)	
<hr/>				
MPP_000000090	001	001		K09
	real_measure_type		NR2..0.0	kilogram
	weight including water			
	screw_propeller_weight_including_water			
	weight of propeller inclusive of entrained water			
MPC_000000014			ISO/WD 10303-226(E)(4.2.173.4)	
<hr/>				
MPP_000000091	001	001		A79
	real		NR2..0.0	
	blade area ratio expanded			
	screw_propeller_blade_area_ratio_expanded			
	ratio of the total area of the blades to the propeller projected area			
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.1)	
<hr/>				
MPP_000000092	001	001		T03
	real_measure_type		NR2..0.0	metre
	blade thickness at centerline			
	screw_propeller_blade_thickness_at_centerline			
	thickness of blade at its centerline for the screw propeller			
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.2)	
<hr/>				
MPP_000000093	001	001		T03
	real_measure_type		NR2..0.0	metre
	diameter			
	screw_propeller_diameter			
	diameter of the screw propeller			
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.4)	
<hr/>				
MPP_000000094	001	001		A79
	real		NR2..0.0	
	hub to diameter ratio			
	screw_propeller_hub_to_diameter_ratio			
	ratio of hub diameter to propeller diameter for the screw propeller			
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.5)	
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MPP_000000095	001	001		A79
real			NR2..0.0	
mean pitch diamete ratio screw_propeller_mean_pitch_diameter_ratio ratio of propeller mean pitch to propeller diameter				
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.6)	
<hr/>				
MPP_000000096	001	001		A79
real			NR2..0.0	
nominal design pitch diameter ratio screw_propeller_nominal_design_pitch_diameter_ratio ratio of nominal mean design pitch to propeller diameter				
MPC_000000014			ISO/WD 10303-225(E)(4.2.175.7)	
<hr/>				
MPP_000000097	001	001		T01
real_measure_type			NR2..0.0	radian
rake_angle screw_propeller_rake_angle screw propeller rake angle				
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.8)	
<hr/>				
MPP_000000098	001	001		T03
real_measure_type			NR2..0.0	metre
shaft height screw_propeller_shaft_height distance between propeller shaft center and ship baseline				
MPC_000000014			ISO/WD 10303-226(E)(4.2.175.9)	
<hr/>				
MPP_000000099	001	000		A79
integer			NR1..0	
rotational speed screw_propeller_opearing_rotational_speed screw propeller rotational speed at the operating point				
MPC_000000014			ISO/WD 10303-226(E)(4.2.126.4)	
<hr/>				
MPP_000000220	001	001		A52
string			A..0	
rotating_machinery_type rotating_machinery_type type of rotating machinery				
MPC_000000012			ISO/WD 10303-226(E)(4.2.167)	
CYPR			cycloidal_propeller	
GATE			gas_turbine	
SCPR			screw_propeller	
SUCR			supercharger	
TUCR			turbocharger	
UDRMT			user_defined_rotating_machinery_type	

PUPR	pump_propulsor
ROPP	rotary_pump
STTE	steam_turbine
ROCR	rotary_compressor
FAN	fan
POTR	power_turbine
AZPR	azimuth_propulsor

MPP_000000038	001 real_measure_type	001 NR2..0.3	K15 error - unknown unit
<p>BMEP diesel_engine_brake_mean_effective_pressure the average pressure per unit area on the piston</p> <p>MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.1)</p>			
MPP_000000039	001 real_measure_type	001 NR2..0.3	K27 watt
<p>brake power diesel_engine_brake_power power need to stop the diesel engine to idle</p> <p>MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.2)</p>			
MPP_000000040	001 real_measure_type	001 NR2..0.3	K12 newtonE1 metreE1
<p>brake torque diesel_engine_brake_torque engine torque at crankshaft output of the diesel engine</p> <p>MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.3)</p>			
MPP_000000041	001 real	001 NR2..0.3	A79
<p>BSFC diesel_engine_brake_specific_fuel_consumption fuel consumption for the unit braking load</p> <p>MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.4)</p>			
MPP_000000042	001 real_measure_type	001 NR2..0.3	K30 metreE3 secondE-1
<p>flow rate diesel_engine_cooling_water_flow_rate rate of flow of the fluid</p> <p>MPC_0000000006 ISO/WD 10303-226(E)(4.2.59.1)</p>			
MPP_000000043	001 real_measure_type	001 NR2..0.3	K15 error - unknown unit
<p>fluid pressure diesel_engine_cooling_water_fluid_pressure pressure in the diesel engine cooling water fluid</p>			

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MPC_0000000006

ISO/WD 10303-226(E)(4.2.59.2)

MPP_0000000044	001	001		H02
	real_measure_type		NR2..0.3	celsius
fluid temperature diesel_engine_cooling_water_fluid_temperature tempeprature of the diesel engine cooling water				
MPC_0000000006			ISO/WD 10303-226(E)(4.2.59.3)	

MPP_0000000045	001	001		K02
	real		NR2..0.3	
nitrogen_oxide diesle_engine_exhaust_nitrogen_oxide exhaust level of nitrogen oxide from diesel egnine				
MPC_0000000006			ISO/WD 10303-226(E)4.2.51.2)	

MPP_0000000046	001	001		K03
	real		NR2..0.3	
particulates diesel_engine_exhaust_particulates level of exhaust particluates from diesel engine				
MPC_0000000006			ISO/WD 10303-226(E)(4.2.51.2)	

MPP_0000000047	001	001		K03
	real		NR2..0.3	
smoke diesel_engine_exhaust_smoke level of exhaust smoke from diesel engine				
MPC_0000000006			ISO/WD 10303-226(E)(4.2.51.4)	

MPP_0000000048	001	001		K03
	real		NR2..0.3	
sulphur_oxides diesel_engine_exhaust_sulphur_oxides level of exhaust sulphur oxides from diesel engine				
MPC_0000000006			ISO/WD 10303-226(E)(4.2.51.5)	

MPP_0000000049	001	001		K03
	real		NR2..0.3	
unburnt hydrocarbons diesel_engine_exhaust_unburnt_hydrocarbons level of exhaust unburnt hydrocarbons from diesel engine				
MPC_0000000006			ISO/WD 10303-226(E)(4.2.51.6)	

MPP_000000050	001 real_measure_type	001 NR2..0.3	K15 error - unknown unit
IMEP diesel_engine_indicated_mean_effective_pressure mean pressure on piston including the force to overcome the friction between the piston and the cylinder MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.8)			
MPP_000000051	001 real_measure_type	001 NR2..0.3	K15 error - unknown unit
maximum_cylinder_pressure diesel_engine_maximum_cylinder_pressure maximum firing pressure of the cylinder in the diesel engine MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.10)			
MPP_000000052	001 integer	001 NR1..0	A79
shaft_revolution_counter diesel_engine_shaft_revolution_counter value shown by shaft revolution counter in the diesel engine MPC_0000000006 ISO/WD 10303-226(E)(4.2.38.11)			
MPP_000000053	001 string	001 X..0	A52
charge cooler arrangement diesel_engine_charge_cooler_arrangement installed arrangement of the charge cooler MPC_0000000006 ISO/WD 10303-226(E)4.2.37.1)			
MPP_000000054	001 string	001 A..0	A52
cylinder configuration diesel_engine_cylinder_configuration engine cylinder configuration MPC_0000000006 ISO/WD 10303-226(E)4.2.37.2)			
	ILE VEE	in-line vee	
MPP_000000055	001 string	001 A..0	A52
engine cycle diesel_engine_cycle the kind of cycle which engine is designed for MPC_0000000006 ISO/WD 10303-226(E)(4.2.37.4)			
	FOS TWS	four_strokes two_stroke	

ISO/WD 10303-226(E)

MPP_000000056	001	001	NR2..0.3	radianE1	T01
real_measure_type					
firing angle diesel_engine_firing_angle angle at which cylinder ignition/injection takes place angle in degree=Radian*180/3.14					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.5)				
<hr/>					
MPP_000000057	001	001	NR2..0.3	radian	T01
real_measure_type					
firing interval diesel_engine_firing_interval nominal interval between consecutive ignitions D=(3.14/180)*R where D = time interval in degrees and R=time interval in radians					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.6)				
<hr/>					
MPP_000000058	001	001	A..0		A52
string					
firing order diesel_engine_firing_order order by which ignition takes place in different cylinders with in a engine cycle					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.7)				
<hr/>					
MPP_000000059	001	001	A..0		A52
string					
fuel injection system type diesel_engine_fuel_injection_system_type type of fuel injection system					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.8)				
COR	common_rail				
DIT	distributor_type				
UDFIST	user_defined_fuel_injection_system_type				
<hr/>					
MPP_000000060	001	001	A..0		A52
string					
fuel oil system type diesel_engine_fuel_oil_system_type type of fuel oil system					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.9)				
<hr/>					
MPP_000000061	001	001	A..0		A52
string					
fuel type diesel_engine_fuel_type type of fuel for the diesel engine					
MPC_000000006	ISO/WD 10303-226(E)(4.2.37.10)				

	FUO GAO UDFT		fuel_oil gas_oil user_defined_fuel_type	
MPP_000000062	001	001		A52
	string		X..0	
	piston guide type diesel_engine_piston_guide_type type of piston guide			
	MPC_000000006		ISO/WD 10303-226(E)(4.2.37.11)	
MPP_000000063	001	001		A52
	string		A..0	
	pressure charging system diesel_engine_pressure_charging_system type of diesel engine pressure charging system			
	MPC_000000006		ISO/WD 10303-226(E)(4.2.37.12)	
	NAA SCD TCD UDPCS		naturally_aspirated supercharged turbocharged user_defined_pressure_charging_system	
MPP_000000064	001	001		A52
	string		A..0	
	reversibility diesel_engine_reversibility capability to be driven in the reverse direction			
	MPC_000000006		ISO/WD 10303-226(E)4.2.37.13)	
MPP_000000065	001	001		A52
	string		A..0	
	starting system method diesel_engine_starting_system_method method of strating the diesel engine			
	MPC_000000006		ISO/WD 10303-226(E)(4.2.37.14)	
	COA ELL HYC UDSSM		compressed_air electrical hydraulic user_defined_starting_system_method	
MPP_000000066	001	001		A52
	string		A..0	
	turbocharger_type diesel_engine_turbocharger_type type of turbo charger used			
	MPC_000000006		ISO/WD 10303-226(E)(4.2.37.15)	

ISO/WD 10303-226(E)

MPP_000000067	001 real_measure_type	001 NR2..0.3	T01 radianE1
vee angle diesel_engine_vee_angle angle for the two banks of cylinders in a vee-configured engine angle in degree = radian*180/3.14 MPC_0000000006 ISO/WD 10303-226(E)(4.2.37.16)			
MPP_000000068	001 real_measure_type	001 NR2..0.3	T10 metreE1 secondE-1
piston_speed diesel_engine_piston_speed piston speed of the diesel engine MPC_0000000006 ISO/WD 10303-226(E)(4.2.36)			
MPP_000000240	001 real_measure_type	001 NR2..0.3	K30 metreE3 secondE-1
flowrate diesel_engine_lube_oil_flowrate rate of flow of the lube oil MPC_0000000006 ISO/WD 10303-226(E)(4.2.59.1)			
MPP_000000241	001 real_measure_type	001 NR2..0.3	K15 error - unknown unit
fluid_pressure diesel_engine_lube_oil_fluid_pressure pressure of the oil in lube oil system of diesel engine MPC_0000000006 ISO/WD 10303-226(E)(4.2.59.2)			
MPP_000000242	001 real_measure_type	001 NR2..0.3	H02 celsius
fluid_temperature diesel_engine_lube_oil_fluid_temperature temperature of the fluid flowing through lubricating oil system of diesel engine MPC_0000000006 ISO/WD 10303-226(E)(4.2.59.3)			
MPP_000000310	001 integer	001 NR1..0	A52
number of cylinders reciprocating_machinery_no_of_cylinders number of cylinders of the reciprocating machinery MPC_0000000005 ISO/WD 10303-226(E)(4.2.162.2)			

MPP_000000309	001	001		A52
string		A..0		
reciprocating_machinery_type reciprocating_machinery_type type of reciprocating machinery				
MPC_000000005		ISO/WD 10303-226(E)(4.2.161)		
DSE REC REP SIE UDRMT FIP STE		diesel_engine reciprocating_compressors reciprocating_pump spark_ignition_engine user_defined_reciprocating_machinery fuel_injection_pump steam_engine		
MPP_000000034	001	001		A52
string		A..0		
cylinder cooling method reciprocating_machinery_cylinder_cooling_method cooling method for the cylinder				
MPC_000000005		ISO/WD 10303-226(E)(4.2.163.1)		
AICD UDCM WACD		air_cooled user_defined_cooling_method water_cooled		
MPP_000000035	001	001		T03
real_measure_type		NR2..0.0	metre	
piston_stroke reciprocating_machinery_piston_stroke distance travelled by piston inside the cylinder in one stroke				
MPC_000000005		ISO/WD 10303-226(E)(4.2.164.3)		
MPP_000000036	001	001		T03
real_measure_type		NR2..0.0	metre	
cylinder_bore reciprocating_machinery_cylinder_bore diameter of the cylinder				
MPC_000000005		ISO/WD 10303-226(E)(4.2.164.2)		
MPP_000000037	001	001		A79
real		NR2..0.0		
compression_ratio reciprocating_machinery_compression_ratio the ratio of the maximum and minimum trapped volumes of a reciprocating machinery				
MPC_000000005		ISO/WD 10303-226(E)(4.2.164.1)		
MPP_000000285	001	001		A52
string		A..0		
mechanical_machinery_type mechanical_machinery_type				

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type of mechanical machinery

MPC_0000000004 ISO/WD 10303-226(E)(4.2.108)

REMY reciprocating_machinery
ROMY rotating_machinery

MPP_0000000274 001 001 A79
integer NR1..0

design_rotational_speed
machinery_design_rotational_speed
designed rotational speed of the machinery

MPC_0000000003 ISO/WD 10303-226(E)(4.2.126.4)

MPP_0000000277 001 001 A79
integer NR1..0

operating_rotational_speed
machinery_operating_rotational_speed
machinery rotational speed at the operating point

MPC_0000000003 ISO/WD 10303-226(E)(4.2.126.4)

MPP_0000000273 001 001 K27
real_measure_type NR2..0.3 watt

operating_power
machinery_operating_power
machinery power at the operating point

MPC_0000000003 ISO/WD 10303-226(E)(4.2.126.3)

MPP_0000000272 001 001 A79
real NR2..0.3

operating_efficiency
machinery_operating_efficiency
machinery efficiency at the operating point

MPC_0000000003 ISO/WD 10303-226(E)(4.2.126.2)

MPP_0000000271 001 001 A56
string A..0

operating_point_description
machinery_operating_point_description
textual description of machinery operating point

MPC_0000000003 ISO/WD 10303-226(E)(4.2.126.1)

MPP_0000000270 001 001 H02
real_measure_type NR2..0.3 celsius

ambient_temperature_minimum
machinery_ambient_temperature_minimum
minimum temperature for which the machinery is designed

MPC_0000000003 ISO/WD 10303-226(E)(4.2.89.4)

MPP_000000269	001 real_measure_type	001	NR2..0.3	celsius	H02
	ambient_temperature_maximum machinery_ambient_temperature_maximum maximum temperature for which the machinery is designed				
	MPC_000000003	ISO/WD 10303-226(E)(4.2.89.3)			
MPP_000000268	001 real_measure_type	001	NR2..0.3		K15 error - unknown unit
	ambient_pressure_minimum machinery_ambient_pressure_minimum minimum ambient pressure for which the machinery is designed				
	MPC_000000003	ISO/WD 10303-226(E)(4.2.89.2)			
MPP_000000267	001 real_measure_type	001	NR2..0.3		K15 error - unknown unit
	ambient_pressure_maximum machinery_ambient_pressure_maximum maximum ambient pressure for which the machinery is designed				
	MPC_000000003	ISO/WD 10303-226(E)(4.2.89.1)			
MPP_000000265	001 string	001	A..0		A51
	machinery_type machinery_type type of machinery				
	MPC_000000003	ISO/WD 10303-226(E)(4.2.88)			
	ELMY MEMY PRMY UDMY	electrical_machinery mechanical_machinery process_machinery user_defined_machinery			
MPP_000000023	001 string	001	A..0		A56
	design_description machinery_design_point_description textual description of machinery design point				
	MPC_000000003	ISO/WD 10303-226(E)(4.2.126.1)			
MPP_000000024	001 real	001	NR2..0.3		A79
	design_efficiency machinery_design_efficiency designed machinery efficiency at the operating point				

ISO/WD 10303-226(E)

MPC_000000003

ISO/WD 10303-226(E)(4.2126.2)

MPP_0000000025	001 real_measure_type	001	NR2..0.3	watt	K27
	design_power machinery_design_power machinery design power at the operating point				
	MPC_000000003		ISO/WD 10303-226(E)(4.2.126.3)		
MPP_0000000026	001 string	001	A..0		A52
	overload characteristics machinery_overload_characteristics machinery overload specification				
	MPC_000000003		ISO/WD 10303-226(E) (4.2.90.2)		
MPP_0000000027	001 integer	001	NR1..0		A79
	otational_speed_maximum machinery_rotational_speed_maximum maximum/rated operational speed of the machinery				
	MPC_000000003		ISO/WD 10303-226(E)(4.2.90.4)		
MPP_0000000028	001 integer	001	NR1..0		A79
	rotational speed minimum machinery_rotational_speed_minimum minimum/idle operational speed of the machinery				
	MPC_000000003		ISO/WD 10303-226(E)(4.2.90.5)		
MPP_0000000029	001 real_measure_type	001	NR2..0.3	watt	K27
	power maximum machinery_power_maximum maximum/rated power of the machinery				
	MPC_000000003		ISO/WD 10303-226(E)(4.2.90.60)		
MPP_0000000030	001 string	001	A..0		
	direction of rotation machinery_direction_of_rotation machinery rotation direction				
	MPC_000000003		ISO/WD 10303-226(E)(4.2.91.2)		
	ANC		anti_clockwise		
	CLK		clockwise		

MPP_000000031	001	001	A..0	A52
string				
lube_oil_system_type machinery_lube_oil_system_type type of lubrication oil system for the machinery				
MPC_000000003		ISO/WD 10303-226(E)(4.2.91.3)		
MPP_000000032	001	001	NR1..0	A79
integer				
accumulated_revolution_counter machinery_accumulated_revolution_counter total number of revolutions of the machinery so far in its life cycle				
MPC_000000003		ISO/WD 10303-226(E)(4.2.92.1)		
MPP_000000033	001	001	NR2..0.0	K26
real_measure_type			joule	
accumulated shaft energy machinery_accumulated_shaft_energy total energy provided or consumed by the machinery at its output/input shaft so far in its life cycle				
MPC_000000003		ISO/WD 10303-226(E)(4.2.92.2)		
MPP_000000019	001	001	A..0	A56
string				
type of duty equipment_type_of_duty underlying duty of equipment				
MPC_000000002		ISO/WD 10303-226(E)(4.2.123.4)		
AUE DEE MAE		auxiliary_equipment deck_equipment main_equipment		
MPP_000000020	001	001	A..0	A56
string				
function equipment_function underlying purpose of the existence or use of the equipment				
MPC_000000002		ISO/WD 10303-226(E)(4.2.123.3)		
EGN FDN FMR HEE LTG PMR UDF		electric_generation fluid_distribution fluid_mover heat_exchange lifting prime_mover user_defined_function		
MPP_000000125	001	001	A..0	A52
string				

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name_manufacturer_specific
 equipment_name_manufacturer_specific
 name of the equipment as used by the manufacturer

MPC_0000000002 ISO/WD 10303-226(E)(4.2.122.1)

MPP_0000000126 001 001 A..0 A52
 string

name_user_specific
 equipment_name_user_specific
 name of the equipment according to the user

MPC_0000000002 ISO/WD 10303-226(E)(4.2.122.2)

MPP_0000000292 001 001 NR2..0.3 metre T03
 real_measure_type

overall_length
 mechanical_product_overall_length
 overall length of the mechanical product

MPC_0000000001 ISO/WD 10303-226(E)(4.2.132.4)

MPP_0000000291 001 001 NR2..0.3 metre T03
 real_measure_type

overall_height
 mechanical_product_overall_height
 overall height of the mechanical product

MPC_0000000001 ISO/WD 10303-226(E)(overall_height)

MPP_0000000290 001 001 NR2..0.3 metre T03
 real_measure_type

overall_breadth
 mechanical_product_overall_breadth
 overall breadth of the mechanical product

MPC_0000000001 ISO/WD 10303-226(E)(4.2.132.2)

MPP_0000000008 001 001 A..0 A62
 string

mechanical_product_version_id
 simple mechanism for version identification of the mechanical product

MPC_0000000001 ISO/WD 10303-226(E)(4.2.111.4)

MPP_0000000007 001 001 A..0 A62
 string

task_in_context
 mechanical_product_task_in_context
 tasks which are related to the mechanical product

MPC_0000000001 ISO/WD 10303-226(E)(4.2.111.4)

MPP_000000006	001	001	A..0	A62
string				
standard_name mechanical_product_standard_name standard name of the mechanical_product				
MPC_000000001		ISO/WD 10303-226(E) (4.2.112.2)		
MPP_000000009	001	001	A..0	A57
string				
material name mechanical_product_material_name name of the material that item is made of				
MPC_000000001		ISO/WD 10303-226(4.2.153.5)		
MPP_000000010	001	001	A..0	A57
string				
material code mechanical_product_material_code code for the material				
MPC_000000001		ISO/WD 10303-226(E)(4.2.153.3)		
MPP_000000011	001	001	A..0	A57
string				
material description mechanical_product_material_description text containing material description				
MPC_000000001		ISO/WD 10303-226(E)(4.2.153.4)		
MPP_000000012	001	001	A..0	A61
string				
documented definitions mechanical_product_documented_definitions refers to the document that define the properties of the material				
MPC_000000001		ISO/WD 10303-226(E)(4.2.153.2)		
MPP_000000013	001	001	A..0	A56
string				
the_function mechanical_product_the_function functionality of the mechanical product				
MPC_000000001		ISO/WD-10303-226(E)(4.2.61.1)		

ISO/WD 10303-226(E)

#MPP_000000014	001 named_type	001		T03 cartesian coordinate
	cg mechanical_product_center_of_gravity center fo gravity of the mechanical product as a point in a cartesian coordinate			
MPC_0000000001			ISO/WD 10303-226(4.2.102.1)	
<hr/>				
MPP_000000015	001 real_measure_type	001	NR2..0.0	K07 newtonE1 metreE2
	mechanical_product_inertia moment of inertia of a mechanical product			
MPC_0000000001			ISO/WD 10303-226(E)(4.2.102.3)	
<hr/>				
MPP_000000016	001 real_measure_type	001	NR2..0.0	K01 kilogram
	mass mechanical_product_mass mass of the mechanical product			
MPC_0000000001			ISO/WD 10303-226(E)(4.2.102.4)	
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MPP_000000017	001 real_measure_type	001	NR2..0.0	K09 kilogram
	weight mechanical_product_weight weight of the mechanical product			
MPC_0000000001			ISO/WD 10303-226(E)(4.2.102.5)	
<hr/>				
MPP_000000005	001 string	001	A..0	A61
	mechanical_product_standard_definition standard definition of the mechanical product			
MPC_0000000001			ISO/WD 10303-226(E)(4.2.111.1)	
<hr/>				
MPP_000000004	001 string	001	A..0	A62
	ship context item_ship_context context of the item in terms of its applicability or belonging to a ship			
MPC_0000000000			ISO/WD 10303-225(E)(4.2.74.4)	
<hr/>				
MPP_000000003	001 string	001	A..0	A62
	id item_id identifies the item			

MPC_0000000000 ISO/WD 10303-226(E)(4.2.74.3)

MPP_000000002	001	001	A61
string		A..0	
documentation item_documentation available documentation for an item			
MPC_0000000000		ISO/WD 10303-226(E)(4.2.74.2)	
MPP_000000001	001	001	A62
string		A..0	
description item_description describes the textual description for the item			
MPC_0000000000		ISO/WD 10303-226(4.2.74.1)	
MPP_0000000740	001	001	A52
string		A..0	
control_component_type control_component_type type of control component			
MPC_0000000276		ISO/WD 10303-226(E)()	
GAGE SESR		gage sensor	
MPP_0000000720	001	001	A52
string		A..0	
structural_component_type structural_component_type type of structural component			
MPC_0000000272		ISO/WD 10303-226(E)()	
ENBK PLTE PRFE		engine_block plate profile	
MPP_0000000710	001	001	A52
string		A..0	
safety_component_type safety_component_type type of safety component			
MPC_0000000269		ISO/WD 10303-226(E)()	
EADE SHLD		earthing_device shaft_locking_device	

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MPP_000000302	001	001	A52
string		A..0	
bolt_type type of bolt			
MPC_000000262		ISO/WD 10303-226(E)(4.2.10)	
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MPP_000000205	001	001	A52
string		A..0	
connecting_component_type connecting_component_type type of connecting component			
MPC_000000261		ISO/WD 10303-226(E)(4.2.13)	
BOT		bolt	
NUT		nut	
PIN		pin	
ROD		rod	
SEL		seal	
CHK		chock	
STIM		structural_item	
UDCC		user_defined_connecting_component	
<hr/>			
MPP_000000626	001	001	A52
string		A..0	
electrical_connector_type electrical_connector_type type of electrical connector type			
MPC_000000256		ISO/WD 10303-226(E)()	
CAED		cable_end	
SOKT		socket	
PLUG		plug	
WEED		welded_end	
<hr/>			
MPP_000000606	001	001	A52
string		A..0	
pipng_item_end_type pipng_item_end_type type of piping item end			
MPC_000000251		ISO?WD 10303-226(E)()	
FLED		flanged_end	
WEED		welded_end	
FLRD		flared_end	
SOED		socketted_end	
<hr/>			
MPP_000000704	001	001	A52
string		A..0	
pipng_connector_type pipng_connector_type type of piping connector			
MPC_000000250		ISO/WD 10303-226(E)()	
PIED		pipng_item_end	
<hr/>			

MPP_000000701	001	001	A..0	A52
string				
shaft_end_type shaft_end_type type of shaft end				
MPC_000000244		ISO/WD 10303-226(E)()		
FLED KDED WEED		flanged_end keyed_end welded_end		
MPP_000000700	001	001	A..0	A52
string				
mechanical_connector_type mechanical_connector_type type of mechanical connector				
MPC_000000243		ISO/WD 10303-226(E)()		
SHED BEET SHJL		shaft_end bearing_element shaft_journal		
MPP_000000301	001	001	A..0	A52
string				
bedplate_type type of bed plate				
MPC_000000241		ISO/WD 10303-226(E)(4.2.9)		
MPP_000000505	001	001	A..0	A52
string				
structural_connector_type structural_connector_type type of structural connector				
MPC_000000240		ISO/WD 10303-226(E)(4.2.186)		
BDPE HIGE		bedplate hinge		
MPP_000000207	001	001	A..0	A52
string				
connector_component_type connector_component_type type of connector component				
MPC_000000239		ISO/WD 10303-226(E)(4.2.16)		
ELC MEC PIC STC UDCT		electrical_connector mechanical_connector piping_connector structural_connector user_defined_connector_type		

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MPP_000000610	001	001	A52
string		A..0	
lifting_component_type lifting_component_type type of lifting component			
MPC_000000231		ISO/WD 10303-226(E)()	
BLCK		block	
CHIN		chain	
LICE		lifting_cable	
LIEE		lifting_eye	
SHLE		shackle	
ROPE		rope	
SWVL		swivel	
<hr/>			
MPP_000000605	001	001	A52
string		A..0	
electrical_component_type electrical_component_type type of electrical component			
MPC_000000227		ISO/WD10303-226(E)()	
PLG		plug	
ELCE		electrical_cable	
WIRE		wire	
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MPP_000000305	001	001	A52
string		A..0	
piston_type piston_type type of piston			
MPC_000000216		ISO/WD 10303-226(E)(4.2.140)	
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MPP_000000610	001	001	A52
string		A..0	
manifold_type manifold_type type of manifold			
MPC_000000213		ISO/WD 10303-226(E)()	
INMD		intake_manifold	
EXMD		exhaust_manifold	
<hr/>			
MPP_000000278	001	001	A52
string		A..0	
mechanical_component_type mechanical_component_type type of mechanical component			
MPC_000000192		ISO/WD 10303-226(E)(4.2.105)	
CYLR		cylinder_liner	
EXVE		exhaust_valve	
INVE		inlet_valve	
PISN		piston	
CYR		cylinder	

BLWT	balance_weight
BRPD	brake_pad
CORD	connecting_rod
CRCE	crankcase
CRAG	crosshear_and_guide
CRPN	crosshear_pin
DRGR	drivegear
EXPT	exhaust_port
FUIR	fuel_injector
FUPG	fuel_pump_gear
GLD	gland
GUPN	gudgeon_pin
GUSS	guide_shoes
GUDS	guides
INDR	inspection_door
INPT	intake_port
MNFD	manifold
RIG	ring
TERD	tension_rod
VACG	valve_cage
WEB	web
CASG	casing
BEET	bearing_element
SHBE	shaft_brake
FUPP	fuel_pump
RUDR	rudder

MPP_000000603	001	001	A52
string		A..0	
pipe_type pipe_type type of pipe			
MPC_000000184		ISO/WD 10303-226(E)(4.2.136)	
EXPE FULE		exhaust_pipe fuel_line	

MPP_000000299	001	001	A52
string		A..0	
pipng_component_type pipng_component_type type of piping component			
MPC_000000183		ISO/WD 10303-226(E)(4.2.137)	
PIP DUT EXJT FITG TUNL DIDT		pipe duct expansion_joint fitting tunnel discharge_duct	

MPP_000000202	001	001	A52
string		A..0	
bearing_type bearing_type type of bearing			
MPC_000000171		ISO/WD 10303-226(E)(4.2.8)	
MAB BEB SHB		main_bearing big_end_bearing shaft_bearing	

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	SEB UDBT		small_end_bearing user_defined_bearing_type	
MPP_000000500	001	001	A.0	A52
	string			
	shaft_type shaft_type type of shaft			
	MPC_000000168		ISO/WD 10303-226(E)(4.2.176)	
MPP_000000602	001	001	A..0	A52
	string			
	rotatting_component_type rotating_component_type type of rotating component			
	MPC_000000167		ISO/WD 10303-226(E)(4.2.166)	
	SHFT FLWL CKST BERG CAMS TUGR PPAY GEWL IMPR GESE		shaft flywheel crankshaft bearing camshaft turning_gear PTO/PTI_assembly gear_wheel impeller gear_stage	
MPP_000000288	001	001	A..0	A52
	string			
	part_of part_of_mechanical_product_component identifies the component is part of mechanical system or mechanical equipment			
	MPC_000000166		ISO/WD 10303-226(E)(4.2.112)	
MPP_000000600	001	001	A..0	A52
	string			
	starting_system_type starting_system_type type of starting system			
	MPC_000000153		ISO/WD 10303-226(E)()	
	PNSS ELSS MASS UDSS		pneumatic_starting_system electric_starting_system manual_starting_system user_defined_starting_system	
MPP_000000225	001	001	A..0	A52
	string			
	type_of type_of_mechanical_transmission_system type of mechanical transmission system			
	MPC_000000152		ISO/WD 10303-226(E)(4.2.120)	

MPP_000000250	001	001	A..0	A52
string				
electrical_system_type type_of_electrical_system type of electrical system				
MPC_000000150		ISO/WD 10303-226(E)(4.2.46)		
MPP_000000209	001	001	A..0	A52
string				
type_of type_of_control_and_monitoring_system type of control and monitoring system				
MPC_000000149		ISO/WD 10303-226(E)(4.2.17)		
MPP_000000595	001	001	A..0	A52
string				
condition_monitoring_system_type condition_monitoring_system_type type of condition monitoring system				
MPC_000000147		ISO/WD 10303-226(E)()		
COMDS UDCMS		crankcase_oil_mist_detection_system user_defined_condition_monitoring_system		
MPP_000000296	001	001	A..0	A52
string				
piping_system_type piping_system_type type of mechanical piping system				
MPC_000000125		ISO/WD 10303-226(E)(4.2.125)		
BWS CAS CWS FWS FIS LOS BAS CODS COAS COOS CAIS EOVS EXGS FDWS FFGS FOS FSS HCS IAS PRWS STMS UDPS		bilge_water_system compressed_air_system cooling_water_system fresh_water_system fuel_injection_system lube_oil_system ballast_system condensate_system control_air_system control_oil_system cooling_air_system engine_room_ventilation_system exhaust_gas_system feed_water_system fire_fighting_system fuel_oil_preheating_system fuel_supply_system heeling_compensation_system intake_air_system pressure_water_system steam_system user_defined_piping_system		

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MPP_000000290	001	001	A..0	A52
string				
power_generation_system_type power_generation_system_type type of power generation system				
MPC_000000118		ISO/WD 10303-226(E)()		
DEPT SHGS STPP GATP CCPT		diesel_electric_plant shaft_generator_system steam_power_plant gas_turbine_plant combine_cycle_plant		
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MPP_000000501	001	001	A..0	A52
string				
type of steam generation system type_of_steam_generation_system type of steam generation system				
MPC_000000117		ISO/WD 10303-226(E)(4.2.183)		
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MPP_000000307	001	001	A..0	A52
string				
propulsion_system_type propulsion_system_type type of propulsion system				
MPC_000000113		ISO/WD 10303-226(E)(4.2.158)		
MEPS ELPS		mechanical_propulsion_system electrical_propulsions_system		
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MPP_000000295	001	001	A..0	A56
string				
functionality mechanical_system_functionality basic functions of a mechanical system				
MPC_000000112		ISO/WD 10303-226(E)(4.2.119)		
EPGN MPGN MPTN PRPN STGN UDFN		electric_power_generation mechanical_power_generation mechanical_power_transmission propulsion steam_generation user_defined_functionality		
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MPP_000000102	001	001	NR2..0.3	T01
real_measure_type				radian
jib angle max crane_jib_angle_max maximum angle of elevation of the crane jib				
MPC_000000108		ISO/WD 10303-226(E)(4.2.26.2)		
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MPP_000000103	001	001			T01
	real_measure_type		NR2..0.3	radian	
	jib angle min crane_jib_angle_min minimum angle of elevation of the crane jib				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.26.3)		
<hr/>					
MPP_000000104	001	001			T03
	real_measure_type		NR2..0.3	metre	
	jib_radius_max crane_jib_radius_max maximum radius of the crane jib from the slewing axis				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.26.4)		
<hr/>					
MPP_000000105	001	001			T03
	real_measure_type		NR2..0.3	metre	
	jib radius min crane_jib_radius_min minimum radius of the crane jib				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.26.5)		
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MPP_000000106	001	001			K09
	real_measure_type		NR2..0.3	newton	
	forces_due_to_wind crane_forces_due_to_wind total forces acting on the crane due to wind				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.25.2)		
<hr/>					
MPP_000000107	001	001			K09
	real_measure_type		NR2..0.3	newton	
	forces dynamic crane_forces_dynamic total force acting on the crane due to wind				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.25.3)		
<hr/>					
MPP_000000108	001	001			K09
	real_measure_type		NR2..0.3	newton	
	forces ship inclination crane_forces_ship_inclination forces acting on the crane due to ship heel and trim				
	MPC_000000108		ISO/WD 10303-226(E)(4.2.25.4)		
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MPP_000000109	001	001			K09
	real_measure_type		NR2..0.3	newton	
	load dead				

MPP_000000117	001 real_measure_type	001	NR2..0.3	T10 metreE1 secondE-1
	hoisting_speed_2 crane_hoisting_speed_2 crane hoisting speed level 2			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.4)	
MPP_000000118	001 real_measure_type	001	NR2..0.3	T10 metreE1 secondE-1
	hoisting_speed_3 crane_hoisting_speed_3 crane hoisting speed level 3			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.5)	
MPP_000000119	001 real_measure_type	001	NR2..0.3	T03 metre
	lifting height crane_lifting_height crane's lifting height			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.6)	
MPP_000000120	001 real_measure_type	001	NR2..0.3	T07 second
	luffing time crane_luffing_time time for raising the jib from its minimum angle to its maximum angle			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.7)	
MPP_000000121	001 real_measure_type	001	NR2..0.3	T10 metreE1 secondE-1
	slewing_speed_single crane_slewing_speed_single crane slewing speed for a single system			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.9)	
MPP_000000122	001 real_measure_type	001	NR2..0.3	T10 metreE1 secondE-1
	slewing speed twin crane_slewing_speed_twin crane slewing speed for a twin system			
	MPC_000000108		ISO/WD 10303-226(E)(4.2.23.9)	

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MPP_000000123	001 real_measure_type	001	NR2..0.3	K12 newtonE1 metreE1
stability moment crane_stability_moment moemnt that is responsible for crane stability				
MPC_000000108	ISO/WD 10303-226(E)(4.2.27.1)			
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MPP_000000124	001 real_measure_type	001	NR2..0.3	K12 newtonE1 metreE1
overturning moment crane_overturning_moment moment that causes crane overturning				
MPC_000000108	ISO/WD 10303-226(E)(4.2.27.1)			
<hr/>				
MPP_000000213	001 string	001	A..0	A52
crane_type type of crane				
MPC_000000108	ISO/WD 10303-226(E)(4.2.20)			
DC UDC	deck_crane user_defined_crane			
<hr/>				
MPP_000000215	001 real_measure_type	001	NR2..0.3	T10 metreE1 secondE-1
wind_speed crane_ambient-condition_wind_speed wind speed for which the crane ahs been designed				
MPC_000000108	ISO/WD 10303-226(E)(4.2.21.2)			
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MPP_000000258	001 string	001	A..0	A52
lifting_equipment_type lifting_equipment_type type of lifting equipment				
MPC_000000107	ISO/WD 10303-226(E)(4.2.79)			
CRN DEK UDLET	crane derrick user_defined_lifting_equipment_type			
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MPP_000000100	001 real_measure_type	001	NR2..0.3	K09 newton
lifting_capacity lifting_equipment_lifting_capacity maximum load that can be lifted by the lifting equipment				
MPC_000000107	ISO/WD 10303-226(E)(4.2.80.2)			
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MPP_000000101	001	001	A..0	A52
string				
nature of lifting operation lifting_capacity_nature_of_lifting_operation specifies the nature of the operation of the lifting equipment				
MPC_000000107		ISO/WD 10303-226(E)(4.2.80.3)		
<hr/>				
MPP_000000245	001	001	A..0	A52
string				
electrical_equipment_type type_of_electrical_equipment type of electrical equipment				
MPC_000000103		ISO/WD 10303-226(E)(4.2.45)		
MOS SWB TRR UDEE		motor_starter switch_board transformer user_defined_electrical_equipment		
<hr/>				
MPP_000000587	001	001	A..0	A52
string				
damper_type damper_type type of damper				
MPC_000000100		ISO?WD 10303-226(E)()		
VIDR SLDR		viscous_damper spring_loaded_damper		
<hr/>				
MPP_000000586	001	001	A..0	A52
string				
clutch_type clutch_type type of clutch				
MPC_000000094		ISO?WD 10303-226(E)()		
PNCH HYCH EMCH		pneumatic clutch hydraulic clutch electro_magnetic_clutch		
<hr/>				
MPP_000000212	001	001	A..0	A52
string				
coupling_type type of shaft coupling				
MPC_000000090		ISO/WD 10303-226(E)(4.2.19)		
FCG FLG SCG UDCT		flexible_coupling fluid_coupling solid_coupling user_defined_coupling_type		
<hr/>				
MPP_000000252	001	001	A..0	A52
string				

ISO/WD 10303-226(E)

gear_box_type
type of gear box

MPC_0000000089

ISO/WD 10303-226(E)(4.2.66)

MPP_0000000281

001

001

A52

string

A..0

mechanical_equipment_type
type_of_mechanical_equipment
type fo mechanical equipment

MPC_0000000088

ISO/WD 10303-226(E)(4.2.107)

GEBX
SHCG
CLTH
SLCR
MEGR
DAPR
#MPP_0000000581,001,001,A52,string
actuator,,MPC_0000000083,ISO/WD
ELAR
HYAR
MAAR

gear_box
shaft_coupling
clutch
silencer
mechanical_governor
damper,
10303-226(E)),PNAR
electric_actuator
hydraulic_actuator
manual_actuator

,A..0,,actuator_type,actuator_type,type
pneumatic_actuator

of

MPP_0000000201

001

001

A51

string

X..0

analyser_type
type of analyser

MPC_0000000081

ISO/WD 10303-226(E)(4.2.3)

MPP_0000000211

001

001

A52

string

A..0

control_equipment_type
control_equipment_type
type of control equipment

MPC_0000000080

ISO/WD 10303-226(E)(4.2.18)

ACT
ANR
SCR
UDCET

actuator
analyer
signal_conditoner
user_defined_control_equipment

MPP_0000000578

001

001

A52

string

A..0

tank_type
tank_type
type of tank

MPC_0000000072

ISO/WD 10303-226(E)()

FUTK
LOTK
FWTK
HOTK
TOTK
SLTK
SETK

fuel_tank
lube_oil_tank
fresh_water_tank
hydraulic_oil_tank
thermal_oil_tank
sludge_tank
sewage_tank

MPP_000000555	001	001	A52
	string	A..0	
valve_type			
valve_type			
type of valve			
MPC_000000056		ISO/WD 10303-226(E)(4.2.210)	
BAVL		ball_valve	
BUVL		butterfly_valve	
CHVL		check_valve	
DIVL		diaphragm_valve	
GAVL		gate_valve	
GLVL		globe_valve	
PLVL		plug_valve	
REVL		relief_valve	
SOVL		solenoid_valve	
UDVT		user_defined_valve_type	
BFVL		ball_float_valve	
DSVL		dish_valve	
POVL		poppet_valve	
PRVL		pressure_control_valve	
SAVL		safety_valve	

M.5 Machine readable library file

This subclause contains a library file, compliant with ISO 13584-42: —¹⁾, containing the class hierarchy, class definition, and property definitions contained in subclauses M.2, M.3 and M.4 of this annex. This clause is supplied in machine readable form only. It may be found on the SC4 On-line Information System (SOLIS) at **(location to be inserted)** ²⁾.

¹⁾ To be published.

²⁾ For the time being, this library may be found in the file smsdict.p21, which should accompany the file containing this part of ISO 10303.

Bibliography

- [1] *Integration Definition for Functional Modelling (IDEFO)*, National Institute of Standards and Technology Federal Processing Standards Publication 183, 1993-12-21.
- [2] ISO 10303-221:—¹⁾, *Industrial automation systems and integration—Product data representation and exchange—Part 221: Functional data and their schematic representation for process ship*.
- [3] ISO 10303-227:1995(E), *Industrial automation systems and integration—Product data representation and exchange—Part 227: Application Protocol: Ship Spatial Configuration*.
- [4] ISO 13584-10:—¹⁾, *Industrial automation systems and integration—Parts library—Conceptual description: Conceptual model of parts library*.

¹⁾ To be published.